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OCCURRENCE AND HABITAT REQUIREMENTS OF AVIAN SPECIES FOUND IN THE ROCKY MOUNTAIN REGION

by
Dr. Ronald Ryder

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REGION 2

U. S. FOREST SERVICE

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PREFACE

The material contained in this publication resulted from two nongame bird workshops conducted by the Rocky Mountain Region of the U. S. Forest Service.

The information on occurrence and habitat requirements has been compiled by Dr. Ronald Ryder, employed under a faculty appointment with the U. S. Forest Service. The information is based upon available literature and Dr. Ryder's personal experience of studying and working with avian species.

The material is intended to provide basic information to be used by National Forest personnel in designing and evaluating various management alternatives for National Forests and National Grasslands.

Approximately 300 species of birds have been recorded on National Forest System lands within Region 2. About 40% occur only as migrates on their way to summer or winter habitats and about 10% occur as winter residents. Approximately 150 species are breeding birds of which about 45% are resident with the other 55% migrating to other areas for the winter.

These avian species are important from a recreationist's standpoint as well as for their biological role within the ecosystem with most recreational use being nonconsumptive. In 1965, it was estimated that from 8-11 million people participated in bird watching in the United States. This activity ranged from individuals spending a few dollars on binoculars and a bird book and just observing birds to other individuals spending large amounts on sophisticated photographic and sound record equipment to enjoy this bird watching activity. Probably the greatest expenditure of dollar results from the feeding of birds. It was estimated in 1972, that from about 15-25 percent of all households spent a total of about 170 million dollars to purchase 30-40 million bird houses and bird feeders. These expenditures and numbers of participants point out that nongame birds do provide considerable recreational use and generate substantial economic values.

Several species of nongame birds have important ecological roles. Many species are insectivorous and assist in reducing populations of insects. Woodpeckers have been known to destroy about 26% of beetle populations at endemic stages. They are, however, not successful in controlling insect populations at epidemic stages.

Due to the various values of nongame birds, it is important that land managers consider the needs of these species when developing management plans and designing projects which will alter the habitat. Habitats which support breeding populations are most important and management should be directed to assure no species is affected to the extent that a significant amount of its habitat is lost. Habitats which support concentrations of wintering birds or serve as a major stopover or resting area for migrating species are also important.

The following guidelines will assist the land manager in developing management plans or designing projects to assure that the habitat needs for the various avian species are maintained.

Management Guidelines

The major coniferous forest types in the Rocky Mountain Region are ponderosa pine, lodgepole pine and spruce-fir. Aspen is the only deciduous species occupying significant acreages. Bird life in these forests is varied and habitat requirements for the species involved also vary greatly. Developing habitat management guidelines for all the species or even groups of species can only be accomplished at the

National Forest level and only with a major effort. It is recognized, however, that maintaining or improving habitat for birds can be accomplished by producing, manipulating or maintaining some key factors in the coniferous forests. These factors are snags, diversity of plant communities, structural diversity within a plant community and riparian habitats located within the forests. Following is a brief discussion on the relationship of these four key factors to birds.

SNAGS

There are two types of snags: Hard snags and soft snags. Hard snags provide perches. Perches are used by some birds as a launch for hunting flying insects or by raptors hunting prey which is either flying or on the ground. Perches are also important during the breeding season for singing and territorial behavior related to the mating season. Hard snags also provide habitat for insects which are a food source for many birds.

Soft snags provide the same things as hard snags do but in addition, provide internal nesting sites. Up to 50% of the birds nesting in the coniferous forests are primary or secondary cavity nesters. When snags disappear, a significant portion of the bird life is no longer present in the coniferous forests.

Guidelines:

1. Snags currently being utilized by birds should be protected.

2. Provide for future snags when preparing sivicultural treatments.

3. On lands where cavity nesting birds are to be emphasized, provide sufficient snags to meet population objectives.

4. Permanently mark all selected snags and trees selected for future snags to assure they are not removed by firewood cutters, future timber operations or other activities.

5. In heavy recreation use areas where snags present safety hazards, provide nest boxes.

DIVERSITY OF PLANT COMMUNITIES

The forest contains many natural openings of various sizes and shapes. These openings are usually grass parks but in some cases may be shrubs or a combination of grasses and shrubs. Inclusions of aspen, oak or birch are also found within the coniferous forest. Old fires and past timber harvest practices have resulted in additional openings. The openings, Forest and the edges between them provide diversity. The openings provi foraging and hunting areas for many species of birds. The shrubs provide

food as well as nesting sites for the bush nesting species. Diversity must also be viewed in a broad context or some species dependent on a particular seral stage or climax forest community may be overlooked. Within the deciduous and coniferous forest, a representation of all the seral stages including mature and over-mature forests should be maintained.

Guidelines:

1. Maintain or increase natural shrub and grassland openings.

2. Maintain or increase inclusions of hardwoods in coniferous forest.

3. Create opens or hardwood inclusion in areas where coniferous forests dominate large blocks of land.

4. Provide mature and over-mature stands to meet population objectives.

5. Provide loose piles of slash to benefit birds and small mammals.

6. If clearcutting is used, the distance between clearcuts should be at least equal to the diameter of the clearcut.

7. Thinning with an irregular spacing results in better habitat for birds than even spacing.

RIPARIAN HABITAT

Riparian habitat is probably the single most important plant community for wildlife, particularly birds. It is also one of the smallest plant communities in the Region. Estimates are that nearly half of the birds in the Region could be expected to be seen in a riparian community at one time or another. Riparian communities are also valuable for many small mammals as well as big game and waterfowl. Vegetation associated with streams, ponds, seeps, rivers, lakes, springs, bogs and wet meadows is normally quite different than vegetation surrounding the riparian communities. This adds to the overall diversity of an area. The riparian community contains a wide variety of vegetation which results in a diverse vegetational structure and a multitude of horizontal and vertical stratification. The water, its associated vegetation, and changes in vegetation progressing away from the water results in many edges. Generally speaking, a riparian community that contains grasses or grass-like species, shrubs and deciduous trees is a more desirable riparian community than one that contains only water and grasses. Many riparian communities, for varying reasons, have been converted to primarily grasses with few or no willow or other shrubs remaining. Many of these areas may need to be restored depending on the bird life which is to be emphasized in the community. Since many avian species are dependent upon the riparian community for their existence it is important that in each

area the species be identified and habitat management programs be designed to meet their needs. Following is a suggested procedure to follow when evaluating proposals which will effect riparian communities. Information on population status of birds can be obtained from state wildlife agencies, National Audubon Society, universities or local ornithologists.

Procedure:

1. Identify and delineate riparian zones and the condition of the habitat.

2. Inventory avian species of recent or existing occurrence in each zone.

3. Determine sensitive bird species present in each zone, i.e. species with specialized habitat requirements - excluding extremely peripheral species.

    a. Species with declining popualtions,

    b. Species with relatively restricted geographic distribution.

    c. Species largely dependent upon or seasonally restricted to the riparian habitat.

    d. Extirpated species.

4. Determine specific habitat requirements for each sensitive species identified.

5. Apply the following guidelines as appropriate.

Timber

1. Harvesting trees within the riparian zone should only be done as a tool for maintaining or enhancing habitat.

2. All snags should be retained with the exception of hazard trees in recreation areas.

Livestock Management

1. Design grazing systems to minimize effect on riparian habitat and allow for reproduction of all classes of vegetation. Possibilities include:

    a. Fencing.

b. Reduce stocking or understock.

c. Rest-rotation grazing.

d. Remove livestock driveways.

e. Salt outside riparian zones.

f. Partial or complete fencing of ponds to exclude livestock.

g. Defer grazing until after breeding, nesting and/or rearing.

2. Restore overgrazed areas.

a. Same procedures as above apply.

b. In addition, replanting of some plant species may be desirable.

Wildlife

1. Recommend adequate big game management and harvest to prevent excessive utilization of riparian vegetation.

2. Beaver management

a. Maintain at carrying capacity of habitat.

b. Remove excess animals.

Recreation

1. Plan and develop recreation sites outside of riparian habitat to minimize the additional disturbance factor.

2. Regulate recreational use in riparian areas occupied by sensitive species.

Transportation

1. Roads.

a. Minimize streambed alteration.

b. Utilize spur access.

c. Abandon and revegetate poorly located roads and replace with alternate routes.

d. Consider seasonal road closures.

Mining - Oil and Gas - Gravel Pits

1. Restrict surface occupancy and emphasize directional drilling.
2. Design gravel pits to enhance wildlife habitat.
3. Encourage nondestructive exploratory methods.

Land Ownership

1. Strive for area management concept.
2. Retain riparian habitat in public ownership.
3. Give high priority to riparian habitat in land acquisition programs.
4. Inform and involve the public to encourage habitat protection on private lands.

The following pages contain a listing of birds that occur in Region 2. The listing of common and scientific names follow the "Check-list of North American Birds," fifth edition (American Ornighologist Union, 1957) as amended by Supplements No. 32 and 33 in 1973 and 1976. The tables classify each species as being abundant-A, common-C, uncommon-U and as a migrant-M, summer resident-S, winter resident-W or year-long resident-Y within the vegetation types where the species occur.

The vegetation types listed are approximate plant series as described by A. W. Kuchler in "Potential Natural Vegetation of the Conterminous United States," American Geographical Society, Special Publication No. 36, 1964.

The following pages contain habitat requirements for most bird species nesting within Region 2. Habitat requirements for waterfowl and game birds are not included. Key references for each species are provided.

VEGETATION TYPES

SPECIES	Barren with Scattered Vegetation	Lodgepole Pine	Douglas Fir	Western Spruce-fir	Black Hills Ponderosa Pine	Ponderosa Pine Douglas Fir	Southwestern Spruce-fir	Aspen	Juniper-pinyon Woodlands	Mountain Mahogany-oak Foothill Type	Great Basin Sagebrush	Saltbush-greasewood	Alpine	Mountain Meadow	Fescue-mountain Muhly	Sagebrush Steppe	Eastern Ponderosa Pine	Wheatgrass-needlegrass Shrub Steppe	Grama-needlegrass Wheatgrass	Grama Buffalograss	Wheatgrass-needlegrass	Wheatgrass-grama Buffalograss	Sand Sage-bluestem Prairie	Nebraska Sandhill Prairie	REMARKS
Common Loon (Gavia immer)					UM										UM	UM	M	UM	UM	M	UM	UM	UM	M	Wetland
Arctic Loon (Gavia arctica)															UM	UM		UM	UM	M	UM	UM	UM	M	Wetland
Red-throated Loon (Gavia stellata)															UM	UM		UM	UM	M	UM	UM	UM	M	Wetland
Red-necked Grebe (Podicepus grisegena)															UM	UM		UM	UM	M	UM	UM	UM	M	Wetland
Horned Grebe (Podiceps auritus)					UM										UM	UM	M	UM	UM	M	UM	UM	UM	M	Wetland
Eared Grebe (Podiceps nigricollis)					UM						US	US		US	UM	UM	M	UM	UM	M	UM	UM	UM	M	Breeds in marsh
Western Grebe (Aechmophorus occidentalis)					UM						US	US		US	CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	" "
Pied-billed Grebe (Podilymbus podiceps)					UM					US	US	US		US	US UW	US UW	US UW	US UW	US UW	US UW	US UW	US UW	US UW	US UW	" "
White Pelican (Pelecanus erythrorhynchos)					UM												M						S		1 colony in Colo.
Double-crested Cormorant (Phalacrocorax auritus)					UM									UN	US	US	US	US	US	US	US	US	US	US	Wetland
Great Blue Heron (Ardea herodias)			US		US	US					US	US			US	US	US	US	US	US	US	US	US	US	Wetland Locally common
Green Heron (Butorides virescens)															UM	UM	M	UM	UM	M	UM	UM	UM	M	Wetland
Cattle Egret (Bubulcus ibis)															UM	UN	M	UM	UM	M	UM	UM	UM	M	Wetland
Great Egret (Casmerodius albus)															UM	UM		UM	UM	M	UM	UM	UM	M	Wetland
Snowy Egret (Egretta thula)											US	US			CM US	CM US		CM US	CM US	CM US	CM US	CM US	CM US	CM S	Nests in marshes
Black-crowned Night Heron (Nycticorax nycticorax)											US	US			CM US	CM US	CM S	CM US	CM US	CM S	CM US	CM US	CM US	CM S	" "
Yellow-crowned Night Heron (Nyctanassa violacea)															UM	UM	M	UM	UM	M	UM	UM	UM	M	" "
Eastern Least Bittern (Ixobrychus exilis)					US						US	US			UM	UM	M	UM	UM	M	UM	UM	UM	S	" "
American Bittern (Botaurus lentiginosus)					UM						CS	CS			CS	CM	CM	CM	CM	CM	CM	CM	CM	CS	" "

VEGETATION TYPES

SPECIES	Barren with Scattered Vegetation	Lodgepole Pine	Douglas Fir	Western Spruce-fir	Black Hills Ponderosa Pine	Ponderosa Pine Douglas Fir	Southwestern Spruce-fir	Aspen	Juniper-pinyon Woodlands	Mountain Mahogany-oak Foothill Type	Great Basin Sagebrush	Saltbush-greasewood	Alpine	Mountain Meadow	Fescue-mountain Muhly	Sagebrush Steppe	Eastern Ponderosa Pine	Wheatgrass-needlegrass Shrub Steppe	Grama-needlegrass wheatgrass	Grama Buffalograss	Wheatgrass-needlegrass	Wheatgrass-grama Buffalograss	Sand Sage-bluestem Prairie	Nebraska Sandhill Prairie	REMARKS
White-faced Ibis (Plegadis chihi)											UM US	US				UM US		UM US	UM US	UM US	UM US	UM US	UM US	UM US	Wetlands
Whistling Swan (Olor columbianus)											UM	UM				UM	UM	UM	UM	UM	UM	UM	UM	UM	" "
Trumpeter Swan (Olor buccinator)																		UM	UM	UM	UM	UM	UM	UM	" "
Canada Goose (Branta canadensis)					CM												CM	CM	CM	CM	CM	CM	CM	CM	" "
White-fronted Goose (Anser albifrons)																		UM	UM	UM	UM	UM	UM	UM	" "
Snow Goose (Chen caerulescens)					UM						UM						UM	UM	UM	UM	UM	UM	UM	UM	" "
Ross' Goose (Chen rossii)											UM	UM					UM	UM	UM	UM	UM	UM	UM	UM	" "
Mallard (Anas platyrhynchos)		US	US	US	CM CS	US	US	US			CS UW	CS UW		US	US	US	CM US	CS AW	CS AW	CS AW	CS AW	CS AW	CS AW	CS AW	" "
Black Duck (Anas rubripes)																		UW	UW	UW	UW	UW	UW	UW	" "
Gadwall (Anas strepera)					CM CW						CS	CS					CM	CS UW	CS UW	CS UW	CS UW	CS UW	CS UW	CS UW	" "
Pintail (Anas acuta)					UM						CS	CS					UM	CS CW	CS CW	CS CW	CS CW	CS CW	CS CW	CS CW	" "
Green-winged teal (Anas crecca)		US	US	US	UM UW	US	US	US			CS	CS					UM	CM	CM	CM	CM	CM	CM	CM	" "
Blue-winged Teal (Anas discors)					UM US						US	US					UM US	CS	CS	CS	CS	CS	CS	CS	" "
Cinnamon Teal (Anas cyanoptera)											CS	CS						UM	UM	UM	UM	UM	UM	UM	" "
American Wigeon (Anas americana)					CM UW						CS	CS					CM	CM	CM	CM	CM	CM	CM	CM	" "
Northern Shoveler (Anas clypeata)					CM						US	US					CM	US CM	US CM	US CM	US CM	US CM	US CM	US CM	" "
Wood Duck (Aix sponsa)					UM												UM	UM	UM	UM	UM	UM	UM	UM	" "
Redhead (Aythya americana)					UM UW						US	US					UM	US CM	US CM	US CM	US CM	US CM	US CM	US CM	" "
Ring-necked Duck (Aythya collaris)					UM				US		US	US					UM	UM	UM	UM	UM	UM	UM	UM	" "

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SPECIES	Barren with Scattered Vegetation	Lodgepole Pine	Douglas Fir	Western Spruce-fir	Black Hills Ponderosa Pine	Ponderosa Pine Douglas Fir	Southwestern Spruce-fir	Aspen	Juniper-pinyon Woodlands	Mountain Mahogany-oak Foothill Type	Great Basin Sagebrush	Saltbush-greasewood	Alpine	Mountain Meadow	Fescue-mountain Muhly	Sagebrush Steppe	Eastern Ponderosa Pine	Wheatgrass-needlegrass Shrub Steppe	Grama-needlegrass Wheatgrass	Grama Buffalograss	Wheatgrass-needlegrass	Wheatgrass-grama Buffalograss	Sand Sage-bluestem Prairie	Nebraska Sandhill Prairie	REMARKS
Canvasback (Aythya valisneria)					UM UW						US	IS					IM	UM	UM	UM	UM	UM	UM	UM	" "
Greater Scaup (Aythya marila)											UM	IM						UM	UM	UM	UM	UM	UM	UM	" "
Lesser Scaup (Aythya affinis)					CM UW						US	IS					CM	CM	CM	CM	CM	CM	CM	CM	" "
Common Goldeneye (Bucephala clangula)					CM												CM							CM	" "
Barrow's Goldeneye (Bucephala islandica)		US				UW		US										UW	UW	UW	UW	UW	UW	UW	" "
Bufflehead (Bucephala albeola)					UM						CM	CM					IM	CM	CM	CM	CM	CM	CM	CM	Nests in NW WY Wetlands
Oldsquaw (Clangula hyemalis)																		UW	UW	UW	UW	UW	UW	UW	Wetlands
White-winged Scoter (Melanitta deglandi)																		UW	UW	UW	UW	UW	UW	UW	" "
Surf Scoter (Melanitta perspicillata)																		UM	UM	UM	UM	UM	UM	UM	" "
Ruddy Duck (Oxyura jamaicensis)					UM						US	US					IM	CM UW	CM UW	CM UW	CM UW	CM UW	CM UW	CM UW	" "
Hooded Merganser (Lophodytes cucullatus)					UW													UM	UM	UM	UM	UM	UM	UM	" "
Common Merganser (Mergus merganser)		CS	CS		US GW	CS											IM	CW	CW	CW	CW	CW	CW	CW	" "
Red-breasted Merganser (Mergus serrator)											UM	UM						UM	UM	UM	UM	UM	UM	UM	" "
Turkey Vulture (Cathartes aura)	CS	US	US	US	CS	IS	US	IS	CS	CS	IS	CS		US	US	CS	CS	CS	US	IS	US	US	CS	CS	" "
Mississippi Kite (Ictinia mississippiensis)																				US			US		Nests in riparian SE
Goshawk (Accipiter gentilis)	UM	UY	UY	UY	US UW	IY	IY	IS	UY	UM	UW	UM	UM	UY	UY	UM	IM	UM	UM				UM	UM	
Sharp-shinned Hawk (Accipter striatus)	UM	UY	UY		UY	IY		IY	UW	UW	UW			UY			CM						UM	UM	
Cooper's Hawk (Accipter cooperii)	UM	UY	UY		UY	IY		IY	UW	UW	UM			UY			IY						UM	UM	
Red-tailed Hawk (Buteo jamaicensis)	UM	US	US	US	CY	IY	US	IS	CY	CY	IY	IY	UM	UY	UY	UY	CY	CM	CM	IM	UM	UM	UM	CY	

1. See last page for Prairie falcon and Lesser Prairie Chicken

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Red-shouldered Hawk (Buteo lineatus)																	UM						UM	UM	
Broad-winged Hawk (Buteo platypterus)					UM												UM						UM	UM	
Swainson's Hawk (Buteo swainsoni)	UM				UM												CM CS						CM CS	CM CS	
Rough-legged Hawk (Buteo lagopus)	UW				UW												UW						CW	CW	
Ferruginous Hawk (Buteo regalis)	UM				UM												UY	UY	UY	UY	UY	UY	UY	UY	
Golden Eagle (Aquila chrysaetos)	UY				UY	UY			UY								UM UW			CW		CW	UM UW	UM UW	
Southern Bald Eagle (Haliaeetus leucocephalus)		UM		UM								UW								UW	UW		UW	UW	Winters around water
Northern Bald Eagle (Haliaeetus leucocephalus)		UM		UM	UW						UW	UW					UW			UW	UW		UW	UW	" "
Marsh Hawk (Circus cyaneus)					US										UM		US			CS		CS	CS	CS	
Osprey (Pandion haliaetus)		US	US	US	UM	US	UM	UM	UM								UM						UM	UM	Wetland
Gyrfalcon (Falcon rusticolus)													UW			UW				UW			UW	UW	
Peregrine Falcon (Falco peregrinus)	US	US	US	US	US	US	US							US			UM						UM	UM	Endangered Species
Merlin (Falco columbarius)	UM	UM	UY	UY	UY	UM	UM	UW	UW	UW	UW	UW	UM	UM	UM	UM	UM	UM	UW	UW	UW	UW	UW	UW	
American Kestrel (Falco sparverius)	CS	US	US	US	CS	US	US	US	CS	CS	CS	CS	UM	US	US	US	CS	US	US	CS	CS	CS	CS	CS	
Blue Grouse (Dendragapus obscurus)	US	UY	UY	UY		CY	UY	CM	UW	UW			US	US											
Ruffed Grouse (Bonasa umbellus)					UY			UY		UY															
White-tailed Ptarmigan (Lagopus leucurus)				UY									UY	US											
Greater Prairie Chicken (Tympanuchus cupido)																							UY	UY	
Sharp-tailed Grouse (Pedioecetes phasianellus)					UY					UY							Iy			UY				CY	

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Sage Grouse (Centrocerus urophasianus)										UM	CY	UY		US		CY									
Bobwhite (Colinus virginianus)																						UY	UY		Mainly riparian in E.
Scaled Quail (Callipepla squamata)																				UY	UY	UY	UY		
Gambel's Quail (Lophortyx gambelii)											UY	UY													Mainly riparian, SW CO
Ring-necked Pheasant (Phasianus colchicus)					UY												UY	UY	UY	UY	UY	UY	UY	UY	Mainly on agr. land
Chukar (Alectoris chukar)									UY	UY	UM	UM													
Gray Partridge (Perdix perdix)																			UY					UY	Mainly in N. agr. lands
Turkey (Meleagris gallopavo)		UM	UM	UM	CY	UY		UY	UY	UY				UM			CY								
Whooping Crane (Grus americana)																								UM	Migrant on plains
Little Brown Crane (Grus canadensis)					CM												CM						CM	CM	" "
Greater Sandhill Crane (Grus canadensis)											US			US	US	US		UM	UM	UM	UM	UM	UM	UM	Nests in parks & along streams
King Rail (Rallus elegans)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Virginia Rail (Rallus limicola)					UM													US UM	US UM	US UM	US UM	US UM	US UM	US UM	Nests in marshes
Sora (Porzana carolina)					US						US	US		CS			UM	US UM	US UM	US UM	US UM	US UM	US UM	US UM	" "
Common Gallinule (Gallinula chloropus)																		UM	UM	UM	UM	UM	UM	UM	" "
American Coot (Fulica americana)					UM						US	US					CM	US AM	US AM	US AM	US AM	US AM	US AM	US AM	Wetlands
Semipalmated Plover (Charadrius semipalmatus)					UM												UM	UM	UM	UM	UM	UM	UM	UM	Wetlands
Snowy Plover (Charadrius alexandrinus)											US							UM	UM	UM	UM	UM	UM	UM	Wetlands
Killdeer (Charadrius vociferus)					CS						CS	CS		CS			CS	AS AM	AS AM	AS AM	AS AM	AS AM	AS AM	AS AM	Wetlands

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Mountain Plover (Charadrius montanus)																			US	CS	UM	CS			Wetland
American Golden Plover (Pluvialis squatarola)																		UM	UM	UM	UM	UM	UM	UM	Wetland
Black-bellied Plover (Pluvialis squatarola)																		UM	UM	UM	UM	UM	UM	UM	Wetland
Ruddy Turnstone (Arenaria interpres)																								UM	Wetland
American woodcock (Philohela minor)					UM UW				US					CS			UM		CM	CM	CM	CM	CM	CM	Wetland
Common Snipe (Capella gallinago)					US												US	US	US	US	US	US	CS	CS	Wetland
Long-billed Curlew (Numenius americanus)																		UM	UM	UM	UM	UM	UM	UM	Wetland
Whimbrel (Numenius phaeopus)																									Probably extinct migrants
Eskimo Curlew (Numanius borealis)					US												US			US	UM	UM	CS	CS	
Upland Sandpiper (Bartramia longicauda)																		UM	UM	UM	UM	UM	UM	UM	Wetland
Spotted Sandpiper (Actitis macularia)					CS												US	US	US	US	US	US	US	US	nests along str.11,000
Willet (Catoptrophorus semipalmatus)					UM																				Wetlands
Solitary Sandpiper (Tringa solitaria)					UM												UM	UM	UM	UM	UM	UM	UM	US	" "
Greater Yellowlegs (Tringa melanoleucos)					UM												UM	CM	CM	CM	CM	CM	CM	CM	" "
Lesser Yellowlegs (Tringa flavipes)					UM												UM	CM	CM	CM	CM	CM	CM	CM	" "
Red Knot (Calidris canutus)																		UM	UM	UM	UM	UM	UM	UM	" "
Pectoral Sandpiper (Calidris melanotos)																		CM	CM	CM	CM	CM	CM	CM	" "
White-rumped Sandpiper (Calidris fuscicollis)																		UM	UM	UM	UM	UM	UM	UM	" "
Baird's Sandpiper (Calidris bairdii)																		UM	UM	UM	UM	UM	UM	UM	" "

VEGETATION TYPES

SPECIES	Barren with Scattered Vegetation	Lodgepole Pine	Douglas Fir	Western Spruce-fir	Black Hills Ponderosa Pine	Ponderosa Pine Douglas Fir	Southwestern Spruce-fir	Aspen	Juniper-pinyon Woodlands	Mountain Mahogany-oak Foothill Type	Great Basin Sagebrush	Saltbush-greasewood	Alpine	Mountain Meadow	Fescue-mountain Muhly	Sagebrush Steppe	Eastern Ponderosa Pine	Wheatgrass-needlegrass Shrub Steppe	Grama-needlegrass wheatgrass	Grama Buffalograss	Wheatgrass-needlegrass	Wheatgrass-grama Buffalograss	Sand Sage-bluestem Prairie	Nebraska Sandhill Prairie	REMARKS
Least Sandpiper (Calidris minutilla)																		CM	CM	CM	CM	CM	CM	CM	Wetlands
Dunlin (Calidris alpina)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Semipalmated Sandpiper (Calidris pusillus)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Western Sandpiper (Calidris mauri)					UM													CM	CM	CM	CM	CM	CM	CM	Wetlands
Short-billed Dowitcher (Limnodromus griseus)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Long-billed Dowitcher (Limnodromus scolopaceus)																		CM	CM	CM	CM	CM	CM	CM	Wetlands
Stilt Sandpiper (Micropalama himantopus)																		CM	CM	CM	CM	CM	CM	CM	Wetlands
Sanderling (Calidris alba)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Buff-breasted Sandpiper (Tryngites subruficollis)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Marbled Godwit (Limosa fedoa)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Hudsonian Godwit (Limosa haemastica)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
American Avocet (Recurvirostra americana)					UM												UM	AM CS	AM CS	AM CS	AM CS	AM CS	AM CS	AM CS	Wetlands
Black-necked Stilt (Himantopus mexicanus)																		UM (nests rare	UM	UM	UM y	UM n W.	UM	UM	Wetlands
Wilson's Phalarope (Steganopus tricolor)					UM									CS			UM	CS		CS	CS	CS	CS	CS	Wetlands
Northern Phalarope (Lobipes lobatus)														UM				UM		UM	UM	UM	UM	UM	Wetlands
Pomarine Jaeger (Stercorarius pomarinus)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Parastic Jaeger (Stercorarius parasiticus)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Glaucous Gull (Larus hyperboreus)																		UW	UW	UW	UW	UW	UW	UW	Wetlands
Herring Gull (Larus argentatus)																	UM	CW	CW	CW	CW	CW	CW	CW	Wetlands

VEGETATION TYPES

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Thayer's Gull (Larus thayeri)																		UW	UW	UW	UW	UW	UW	UW	Wetlands
California Gull (Larus californicus)																		US CM	US CM	US CM	US CM	US CM	US CM	US CM	Wetlands
Ring-billed Gull (Larus delawarensis)					UM												UM	CM UY	CM UY	CM UY	CM UY	CM UY	CM UY	CM UY	nests near Laramie
Franklin's Gull (Larus pipixcan)					UM												UM	AM	AM	AM	AM	AM	AM	AM	Wetlands
Bonaparte's Gull (Larus philadelphia)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Little Gull (Larus minutus) (Rare)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Sabine's Gull (Xema sabinii)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Forster's Tern (Sterna forsteri)																		CM US	CM US	CM US	CM US	CM US	CM US	CM US	Wetlands
Common Tern (Sterna hirundo)																	UM	UM	UM	UM	UM	UM	UM	UM	Nests in sandhills
Least Tern (Sterna albifrons)																		UM US	UM US	UM US	UM US	UM US	UM US	UM US	" "
Caspian Tern (Hydroprogne caspia)																		UM	UM	UM	UM	UM	UM	UM	Wetlands
Black Tern (Chlidonias niger)																	UM	AM US	AM US	AM US	AM US	AM US	AM US	AM US	Locally abd.nester
Band-tailed Pigeon (Columba fasciata)						US	US			US															
Rock Dove (Columba livia) = Common Pigeon			FERAL		IN CANYONS NEAR TOWNS																				Locally abd.nester
Mourning Dove (Zenaida macroura)		CM			CS	US			CS	CS	CS	CS			AM	AM CS	AM CS	AM CS	AM CS	AM CS	AM CS	AM CS	AM CS	AM CS	" "
Yellow-billed Cuckoo (Coccyzus americanus)					US												US	US	US	US	US	US	US	US	Riparian woods
Black-billed Cuckoo (Coccyzus erythropthalmus)					US	US											US	US	US	US	US	US	US	US	" "
Roadrunner (Geococcyx californianus)																				US			US		Rdrunners in S. CO cany.
Barn Owl (Tyto alba)						UW				US							US	US	US	US	US	US	US	US	Around bldgs. & canyons

VEGETATION TYPES

SPECIES	Barren with Scattered Vegetation	Lodgepole Pine	Douglas Fir	Western Spruce-fir	Black Hills Ponderosa Pine	Ponderosa Pine Douglas Fir	Southwestern Spruce-fir	Aspen	Juniper-pinyon Woodlands	Mountain Mahogany-oak Foothill Type	Great Basin Sagebrush	Saltbush-greasewood	Alpine	Mountain Meadow	Fescue-mountain Muhly	Sagebrush Steppe	Eastern Ponderosa Pine	Wheatgrass-needlegrass Shrub Steppe	Grama-needlegrass Wheatgrass	Grama Buffalograss	Wheatgrass-needlegrass	Wheatgrass-grama Buffalograss	Sand Sage-bluestem Prairie	Nebraska Sandhill Prairie	REMARKS
Screech Owl (Otus asio)					UY				US								US	US	US	US	US	US	US	US	In riparian woods
Flammulated Owl (Otus flammeolus)			US			US	US	US	US																
Great Horned Owl (Bubo virginianus)	UY	UY	UY	UY	CY	CY	UY	UY	CY	CY	CY	CY		CY	CY	CY	CY	CY	CY	CY	CY	CY	CY	CY	
Snowy Owl (Nyctea scandiaca)																		UW	UW	UW	UW	UW	UW	UW	
Pygmy Owl (Glaucidium)		UY	UY			UY		UY	UY																
Burrowing Owl (Speotyto cunicularia)					US												US	CS	CS	CS	CS	CS	US	US	
Barred Owl (Strix varia)						UM																	?	?	
Spotted Owl (Strix occidentalis)		UY	UY	UY		UY	UY																		
Long-earned Owl (Asio otus)					UY				UY	UY							US	UY	UY	UY	UY	UY	UY	UY	
Short-eared Owl (Asio flammeus)																	UM	UW US	UW US	UW US	UW US	UW US	UW US	UW US	Nests locally & erratically
Saw-whet Owl (Aegolius acadicus)					UY	UY	UY	UY	UY								UY								
Whip-poor-will (Caprimulgus vociferus)																									
Poor-will (Phalaenoptilus nuttallii)					US				CS	CS	CS	US					US								
Common Nighthawk (Chordeiles minor)					CS					CS	CS	CS					CS	CS	CS	CS	CS	CS	CS	CS	
Black Swift (Cypseloides niger)		US	US	US				US					US												Locally abund, certain cliffs
Chimney Swift (Chaetura pelagica)																		UM (some nesting in plains towns)	UM	UM	UM	UM	UM	UM	
White-throated Swift (Aeronautes saxatalis)					CS				CS	US	US	US	UM				US		CS (local, nest in cliffs)	CS	CS	CS	CS	CS	
Ruby-throated Hummingbird (Archilochus colubris)																						?	?	UM	
Black-chinned Hummingbird (Archilochus alexandri)	US								US	US															Locally common SW CO

VEGETATION TYPES

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Broad-tailed Hummingbird (Selasphorus platycercus)		CS	CS	CS	US	CS	CS	CS	US	US	US	US				CS									
Rufous Hummingbird (Selasphorus rufus)		CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	CM											
Calliope Hummingbird (Stellula calliope)		UM	UM		UM	UM	UM	UM	UM	UM	UM	UM	UM												Nests in NW WYO.
Rivoli's Hummingbird (Eugenes fulgens)							US		US	US															Mainly in Ariz.
Belted Kingfisher (Megaceryle alcyon)					CY												CY	CY	CY	CY	CY	CY	CY	CY	Along streams
Common Flicker (Colaptes auratus)		AY	AY	AY	CS UW	AY	AY	AY	AY	CM	CM	CM	CM	CM	CY	CY	CY	CY	CY	CY	CY	CY	CY	CY	Wherever riparian habitat
Red-bellied Woodpecker (Centurus carolinus)																	UW	UW	UW	UW	UW	UW	UW	UW	In riparian trees
Red-headed Woodpecker (Melanerpes erythrocephalus)					US												CS	CS	CS	CS	CS	CS	CS	CS	" "
Lewis'Woodpecker (Asynedesmus lewis)					US UW	CS UW		US UY	UY								US								" "
Yellow-bellied Sapsucker (Sphyrapicus varius)		US	US	US	US	US		AS	CS								CM	CM	CM	CM	CM	CM	CM	CM	" "
Williamson's Sapsucker (Sphyrapicus thyroideus)		CS	CS	US		CS	US	CS	US																
Hairy Woodpecker (Dendrocopos villosus)		UY	UY	UY	CY	UY	UY	UY	UY								UW	UW	UW	UW	UW	UW	UW	UW	locally abund esp w/ bark beetle outbreak
Downy Woodpecker (Dendrocopos pubescens)		UY	UY	UY	UY	UY	UY	UY	UY	UY							UY	UY	UY	UY	UY	UY	UY	UY	In riparian trees
Ladder-backed Woodpecker (Dendrocopos scalaris)																							UY		In SE COLO.
Black-backed Three-toed Woodpecker (Picoides arcticus)		UY		UY	UY												UW								In N. WY & NW SD
Northern Three-toed Woodpecker (Picoides tridactylus)		UY	UY	UY	UY	UY	UY										UW								
Eastern Kingbird (Tyrannus tyrannus)					CS				US	US							CS	CS	CS	CS	CS	CS	CS	CS	In riparian trees homesteak
Western Kingbird (Tyrannus verticalis)					US	US	US	US	US	US	US	US			US	US	CS	CS	CS	CS	CS	CS	CS	CS	
Cassin's Kingbird (Tyrannus vociferans)						US			US	US	US	US					US								

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Scissor-tailed Flycatcher (Muscivora forficata)																							US		Extreme SE CO & SW KS
Great-crested Flycatcher (Myiarchus crinitus)					US												US	US	US	US	US	US	US	US	Extreme E., riparian
Ash-throated Flycatcher (Myiarchus cinerascens)									CS																
Eastern Phoebe (Sayornis phoebe)					US												US						US		
Black Phoebe (Sayornis nigricans)									US																Has nest near Pueblo.
Say's Phoebe (Sayornis saya)					US				CS	CS				US	US	US	US	US	US	US	US	US	US	US	Locally common
Yellow-bellied Flycatcher (Empidonax falviventris)																		UM	UM	UM	UM	UM	UM	UM	
Acadian Flycatcher (Empidonax virescens)																		US	US	US	US	US	US	US	Riparian thickets
Willow (Trail's) Flycatcher (Empidonax traillii)					UM US	US		US	US	US								US	US	US	US	US	US	US	" "
Least Flycatcher (Empidonax minimus)					US	US											UM	UM	UM	UM	UM	UM	UM	UM	May nest locally
Hammond's Flycatcher (Empidonax hammondii)		US	US	US		US	US	US																	
Dusky Flycatcher (Empidonax oberholseri)		US	US	US	US	US	US	US																	
Gray Flycatcher (Empidonax wrightii)									CS	US	US	US				US									
Western Flycatcher (Empidonax difficilis)		US	US	US	CS	CS	US	US	US	US							CS								
Eastern Wood Pewee (Contopus virens)					UM												UM	UM	UM	UM	UM	UM	UM	UM	
Western Wood Pewee (Contopus sordidulus)		CS	US	US	CS	CS	CS	CS	CS	CS							CS	CS	CS	CS	CS	CS	CS	CS	
Olive-sided Flycatcher (Nuttallornis borealis)		US	US	US	UM	US	US																		
Vermilion Flycatcher (Pyrocephalus rubinus)									US		US														S.W. Colorado
Horned Lark (Eremophila alpestris)	CY				CS UW				CY	CY	CY	CY	CS	US		CY	CY	AM CY	AM CY	AM CY	AM CY	AM CY	AM CY	AM CY	In open areas

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Violet-green Swallow (Tachycineta thalassina)		US	US	US	CS	CS	US	CS	CS	US							CS								
Tree Swallow (Iridoprocne bicolor)	CM	CM US	CM US	CM US	UM	CM US	CM US	CM US	CM CS	CM US	CM	CM						CM	CM	CM	CM	CM	CM	CM	Around water
Bank Swallow (Riparia riparia)					US	US				US	US	US					UM	UM	UM	UM	UM	IM	UM	UM	Nests locally, along streams
Rough-winged Swallow (Stelgidopteryx ruficollis)					CS	US	US			US	US	US					CS	US	US	US	US	US	US	US	Locally common
Barn Swallow (Hirundo rustica)					US					CS	CS	CS					CS	CS	CS	CS	CS	CS	CS	CS	Around bldgs., under bridges
Cliff Swallow (Petrochelidon pyrrhonota)					US				CS	CS	CS	CS		CS	CS	CS	CS	CS	CS	CS	CS	CS			On cliffs, under bridges
Purple Martin (Progne subis)									US								US	US	US	US	US	US	US	US	Local nestings
Gray Jay (Perisoreus canadensis)		CY	CY	CY	UY	UY	CY	UY	UW																
Blue Jay (Cyanocitta cristata)					CY												UY	UY	UY	UY	UY	UY	UY	UY	Mainly raparian
Steller's Jay (Cyanocitta stelleri)		UY	UY	UY		CY	UY	UY	UY				UM				UW								
Scrub Jay (Aphelocoma coerulesceus)						UY			AY	AY	UY														
Black-billed Magpie (Pica pica)	US	US	US	US	CY	CY	US	US	CY	CY	CY	CY	US	CY	CY	CY	CY	CY	CY	CY	CY	CY	CY	CY	Locally abund.
Common Raven (Corvus corax)	CY	CY	CY	CY	UM	CY	CY	CY	CY	UW	UW	CS	US												
White-necked Raven (Corvus cryptoleucus)					UM															US	US	US	CS		Mainly SE CO, SW KS
Common Crow (Corvus brachyrhynchos)					CY	CY	CY	CS	US								CY	CY	CY	CY	CY	CY	CY	CY	Mainly riparian
Pinyon Jay (Gymnorhinus cyanocephalus)	UM	UM	UM	UM	CY	UM	UM	UM	AY	UM	UM	UM	UM	UM	UM	UM	UY								
Clark's Nutcracker (Nucifraga columbiana)	CM	CY	CY	CY	UM	CW	CY	CM	CY	CW							UW								
Black-capped Chickadee (Parus atricapillus)		US	US	US	AY	CS		CS	UM								CY	CY	CY	CY	CY	CY	CY	CY	Mainly riparian
Mountain Chickadee (Parus gambeli)		CY	CY	CY		CY	CY	UY	UY	UY															Some winter common in fthills

VEGETATION TYPES

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Plain Titmouse (Parus inornatus)									CY	UY															
Bushtit (Psaltriparus minimus)							UM			UY	CY														
White-breasted Nuthatch (Sitta carolinensis)					CY	CY											CY	CY	CY	CY	CY	CY	CY	CY	
Red-breasted Nuthatch (Sitta canadensis)					CY	CY											CY	UW	UW	UW	UW	UW	UW	UW	
Pygmy Nuthatch (Sitta pygmaea)		UM	UM	UM	UY	AY	UW	CY	UW								UY								
Brown Creeper (Certhia familiaris)		UY	UY	UY	UY	UY	UY		UW								UY	UW	UW	UW	UW	UW	UW	UW	Along streams riparian trees
Dipper (Cinclus mexicanus)		US	US	US	UY	UY	UY	UY																	Along streams
House Wren (Troglodytes aedon)		US	US	US	CS	CS	CS	CS									US	CS	CS	CS	CS	CS	CS	CS	" ", in brush
Winter Wren (Troglodytes troglodytes)					UW												UM	UW	UW	UW	UW	UW			
Bewick's Wren (Thryomanes bewickii)									CS														US	US	
Carolina Wren (Thryothorus ludovicianus)																		US	US	US	US	US	US	US	
Long-billed Marsh Wren (Telmatodytes palustris)					US						US	US		US	US	US	US	US	US	US	US	US	US	US	Locally abund. in marshes
Short-billed Marsh Wren (Cistothorus platensis)																		US	US	US	US	US	US	US	Few records
Canyon Wren (Salpinctes mexicanus)					US	US			UY	US	US	US					US								In dry canyons
Rock Wren (Salpinctes obsoletus)	US				US	US			US	US	US	US					US	US	US	US	US	US	US	US	Locally common
Mockingbird (Mimus polyglottos)					US				US	US	US						US	US	US	US	US	US	US	US	More common in S
Gray Catbird (Dumetella carolinensis)					CS	US			US	US	US						US	US	US	US	US	US	US	US	
Brown Thrasher (Toxostoma rufum)					CS	US											US	US	US	US	US	US	US	US	
Curve-billed Thrasher (Toxostoma curvirostre)																							US		

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Sage Thrasher (Oreoscoptes montanus)					US				CM	CM	CS	CS				CS		CM	CM	CM	CM	CM	CM	CM	
American Robin (Turdus migratorius)		AS	AS	AS	AS UW	AS	AS	AS UW	CS	CS	CM	CM	CM	CM	CM	CM	CS CM	CS CM	CS CM	CS CM	CS CM	CS CM	CS CM	CS CM	In towns
Varied Thrush (Ixoreus naevius)					UW	UW											UM	UM	UM	UM	UM	UM	UM	UM	Rare sightings
Wood Thrush (Hylocichla mustelina)																		UM	UM	UM	UM	UM	UM	UM	
Hermit Thrush (Catharus guttatus)		CS	CS	CS	UM	US	CS	CM									UM								
Swainson's Thrush (Catharus ustulatus)		US	US	US	CS	US	US	CM	CM	CM	CM						CM	CM	CM	CM	CM	CM	CM	CM	
Gray-cheeked Thrush (Catharus minimus)					UM												UM	UM	UM	UM	UM	UM	UM	UM	Few records
Veery (Hylacichla fuscescens)		US	US		US												UM	UM	UM	UM	UM	UM	UM	UM	
Eastern Bluebird (Sialia sialis)					US	US	UM										US	UM	UM	UM	UM	UM	UM	UM	
Western Bluebird (Sialia mexicana)					US	US		CM US	CM US	CM US															
Mountain Bluebird (Sialia currucoides)		AM CS	AM CS	AM CS	AM CS	AM CS	AM US	AM AS	AM CS	AM	AM		US				US	CM	CM	CM	CM	CM	CM	CM	Winters in S. of R-2.
Townsend's Solitaire (Myadestes townsendi)		CY	CY	CY	US	CY	CY	CY	CW	CW							CW								
Blue-gray Gnatcatcher (Polioptila caerulea)									US	US	US														
Golden-crowned Kinglet (Regulus satrapa)		US UW	US UW	US UW	UY	US UW	US UW	UM									UW								
Ruby-crowned Kinglet (Regulus calendula)		US	US	US	US	US	US	US										UM	UM	UM	UM	UM	UM	UM	Also winters in Riparian
Water Pipit (Anthus spinoletta)					UM								CS					UM	UM	UM	UM	UM	UM	UM	Migrant around water
Sprague's Pipit (Anthus spragueii)																		UM	UM	UM	UM	UM	UM	UM	
Bohemian Waxwing (Bombycilla garrulus)		UW	UW	UW	CW	UW	UW	UW										UW	UW	UW	UW	UW	UW	UW	In towns & in riparian (irreg.)
Cedar Waxwing (Bombycilla cedrorum)					UY CM					US							UW	UM UW	UM UW	UM UW	UM UW	UM UW	UM UW	UM UW	" "

VEGETATION TYPES

SPECIES	Barren with Scattered Vegetation	Lodgepole Pine	Douglas Fir	Western Spruce-fir	Black Hills Ponderosa Pine	Ponderosa Pine Douglas Fir	Southwestern Spruce-fir	Aspen	Juniper-pinyon Woodlands	Mountain Mahogany-oak Foothill Type	Great Basin Sagebrush	Saltbush-greasewood	Alpine	Mountain Meadow	Fescue-mountain Muhly	Sagebrush Steppe	Eastern Ponderosa Pine	Wheatgrass-needlegrass Shrub Steppe	Grama-needlegrass Wheatgrass	Grama Buffalograss	Wheatgrass-needlegrass	Wheatgrass-grama Buffalograss	Sand Sage-bluestem Prairie	Nebraska Sandhill Prairie	REMARKS
Northern Shrike (Lanius excubitor)					UW												UW	UW	UW	UW	UW	UW	UW	UW	
Loggerhead Shrike (Lanius ludovicianus)					US UM					US	CS	CS	US			US	CS	CS	CS	CS	CS	CS	CS	CS	
Starling (Sturnus vulgaris)					CY	CS		US									AY	AY	AY	AY	AY	AY	AY	AY	Mainly in towns & around farms
Bell's Vireo (Vireo bellii)																	US	US	US	US	US	US	US	US	Riparian
Gray Vireo (Vireo vicinior)									US																
Solitary Vireo (Vireo solitarius)		US	US		CS	US		US										UM	UM	UM	UM	UM	UM	UM	
Red-eyed Vireo (Vireo olivaceus)					CS	US											CS	US UM	US UM	US UM	US UM	US UM	US UM	US UM	In towns, riparia
Warbling Vireo (Vireo gilvus)		US	US	US	CS	US	US	CS									US	US	US	US	US	US	US	US	" "
Black-and-White Warbler (Mniotilta varia)					US	UM											UM	UM	UM	UM	UM	UM	UM	UM	" "
Prohnonotary Warbler (Protonotaria citrea)																	UM	UM	UM	UM	UM	UM	UM	UM	" "
Worm-eating Warbler (Helmintheros vermivorus)					UM													UM	UM	UM	UM	UM	UM	UM	" "
Golden-winged Warbler (Vermivora chrysoptera)																		UM	UM	UM	UM	UM	UM	UM	" "
Tennessee Warbler (Vermivora peregrina)					UM													UM	UM	UM	UM	UM	UM	UM	" "
Orange-crowned Warbler (Vermivora celata)					UM	CM			US	US	UM						CM	CM	CM	CM	CM	CM	CM	CM	" "
Nashville Warbler (Vermivora ruficapilla)					UM	UM			UM	UM								UM	UM	UM	UM	UM	UM	UM	" "
Virginia's Warbler (Vermivora virginiae)										CS				UM				UM							" "
Northern Parula (Parula americana)						UM				UM								UM	UM	UM	UM	UM	UM	UM	" "
Yellow Warbler (Dendroica petechia)		CS	CS		CS	CS	CS	CS									CS	CS	CS	CS	CS	CS			" "
Magnolia Warbler (Dendroica magnolia)						UM											UM	UM	UM	UM	UM	UM	UM	UM	" "

VEGETATION TYPES

SPECIES	Barren with Scattered Vegetation	Lodgepole Pine	Douglas Fir	Western Spruce-fir	Black Hills Ponderosa Pine	Ponderosa Pine Douglas Fir	Southwestern Spruce-fir	Aspen	Juniper-pinyon Woodlands	Mountain Mahogany-oak Foothill Type	Great Basin Sagebrush	Saltbush-greasewood	Alpine	Mountain Meadow	Fescue-mountain Muhly	Sagebrush Steppe	Eastern Ponderosa Pine	Wheatgrass-needlegrass Shrub Steppe	Grama-needlegrass Wheatgrass	Grama Buffalograss	Wheatgrass-needlegrass	Wheatgrass-grama Buffalograss	Sand Sage-bluestem Prairie	Nebraska Sandhill Prairie	REMARKS
Black-throated Blue Warbler (Dendroica caerulescens)					US	UM												UM	UM	UM	UM	UM	UM	UM	
Yellow-rumped Warbler (Dendroica coronata)		CS	CS	CS	CS	CS	CS	CS	CM	CM				CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	
Black-throated Gray Warbler (Dendroica nigrescens)										CS	UM														
Townsend's Warbler (Dendroica townsendi)						UM		UM	UM	UM								UM	UM	UM	UM	UM	UM	UM	
Black-throated Green Warbler (Dendroica virens)						UM												UM	UM	UM	UM	UM	UM	UM	
Blackburnian Warbler (Dendroica fusca)																		UM	UM	UM	UM	UM			
Grace's Warbler (Dendroica graciae)						US				US															In extreme SW CO
Chestnut-sided Warbler (Dendroica pensylvanica)						UM												UM	UM	UM	UM	UM	UM	UM	In towns and riparians
Bay-breasted Warbler (Dendroica castanea)						UM												UM	UM	UM	UM	UM			" "
Blackpoll Warbler (Dendroica striata)					UM	UM											UM	UM	UM	UM	UM	UM	UM	UM	" "
Pine Warbler (Dendroica pinus)						UM												UM	UM	UM	UM	UM			" "
Palm Warbler(Dendroica palmarum)					UM	UM												UM	UM	UM	UM	UM			" "
Ovenbird (Seiurus aurocapillus)					CS	US				US							US	UM	UM	UM	UM	UM			" "
Northern Waterthrush (Seiurus noveboracensis)					UM	UM					UM	UM						UM	UM	UM	UM	UM	UM	UM	" " (around marsh
MacGillivray's Warbler (Oporornis tolmiei)					US	US					US		US	US				UM	UM	UM	UM	UM	UM	UM	" "
Common Yellowthroat (Geothlypis trichas)					CS	CS								CS			CS	CS	CS	CS	CS	CS	CS	CS	" (artlund marsh
Yellow-breasted Chat (Icteria virens)					CS	US			US	US							US	UM	UM	UM	UM	UM	UM	UM	" "
Hooded Warbler (Wilsonia citrina)						UM														UM					In towns and riparian
Wilson's Warbler (Wilsonia pusilla)						UM							CS	CS				CM	CM	CM	CM	CM	CM	CM	" "

VEGETATION TYPES

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Canada Warbler (Wilsonia canadensis)																		UM	UM	UM	UM	UM	UM	UM	In towns and riparians
American Redstart (Steophaga ruticilla)					CS	CS			UM	UM							CS	CM	CM	CM	CM	CM	CM	CM	" "
House Sparrow (Passer domesticus)					AY	AY			AY	AY	AY	AY		AY	AY	AY	AY	AY	AY	AY	AY	AY	AY	AY	Towns and farms
Bobolink (Dolichonyx oryzivorus)														US				US	US	US	US	US			Local breeding irregular
Eastern Meadowlark (Sturnella magna)																	US	US	US	US	US	US	US	US	
Western Meadowlark (Sturnella neglecta)		US	US	US	AS	US		US	US	US	US	US			AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	In parks and grasslands
Yellow-headed Blackbird (Xanthocephalus xanthocephalus)					UM						US	US		US	US	US	UM	UM	US	US	US	US	US	US	Around marshes
Red-winged Blackbird (Agelaius phoeniceus)					CS	CS		CS	CS	CS	CS	CS		CS	CS	CS	CS	CS UW	CS UW	CS UW	CS UW	CS UW	CS UW	CS UW	" "along streams
Orchard Oriole (Icterus spurius)					US	US											US	US	US	US	US	US	US	US	Riparian & towns
Northern Oriole (Icterus galbula)					CS				CS	CS	CS	CS					CS	CS	CS	CS	CS	CS	CS	CS	" "
Rusty Blackbird (Euphagus carolinus)					UM	UW												UW	UW	UW	UW	UW	UW	UW	" "
Brewer's Blackbird (Euphagus cyanocephalus)		US	US		CS	CS			CS	CS	CS	CS		CS	CS	CS	CM	CS UW	CS UW	CS UW	CS UW	CS UW	CS UW	CS UW	Riparian & towns
Common Grackle (Quiscalus quiscula)					CS AM	CS											CS AM	CS AM	CS AM	CS AM	CS AM	CS AM	CS AM	CS AM	" "
Brown-headed Cowbird (Molothrus ater)					UM US	US		US	US	US	US			US	US	US	US	US	US	US	US	US	US	US	Mainly riparian
Western Tanager (Piranga ludoviciana)		US	US		CS	CS			US	US				CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	" "
Scarlet Tanager (Piranga olivacea)						UM												UM	UM	UM	UM	UM	UM	UM	" "
Summer Tanager (Piranga rubra)						UM												UM	UM	UM	UM	UM	UM	UM	" "
Cardinal (Cardinalis cardinalis)																		UY	UY	UY	UY	UY		UY	" "
Rose-breasted Grosbeak (Pheucticus ludovicianus)					UM	US											US	UM	UM	UM	UM	UM	UM	UM	" "

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Black-headed Grosbeak (Pheucticus melanocephalus)					CS	US				CS	CS						CS	US UM	US UM	US UM	US UM	US UM	UM	UM	Mainly riparian
Blue Grosbeak (Guiraca caerulea)					US	US			US	US		US					US	US	US	US	US	US	US	US	Riparian & towns
Indigo Bunting (Passerina cyanea)					US	US			US	US							US	US	US	US	US	US	US	US	" "
Lazuli Bunting (Passerina amoena)					CS	CS			CS	CS	CS	CS					CS	CS	CS	CS	CS	CS	CS	CS	" "
Dickcissel (Spiza americana)					US												US	US	US	US	US	US	US	US	Irregular
Evening Grosbeak (Hesperiphona vespertina)		US UW	US UW	UW	CM CW	US CW											CW	CW	CW	CW	CW	CW	CW	CW	" "
Purple Finch (Carpodacus purpureus)					UW	UW												UW	UW	UW	UW	UW	UW	UW	" "
Cassin's Finch (Carpodacus cassinii)		UY	UY	UY	UW	UY	UY										UW	UW	UW	UW	UW	UW			" "
House Finch (Carpodacus mexicanus)						CY			CY	CY	CY	CY						CY	CY	CY	CY	CY	CY		~~Mainly in towns~~
Pine Grosbeak (Pinicola enucleator)		UW	UW	CY	US	UW	CY																		
Gray-crowned Rosy Finch (Leucosticte tephrocotis)	UW	UW	UW	UW	UW	UW	UW						CM CW UW					UW	UW	UW	UW	UW			In parks, bare areas
Black Rosy Finch (Leucosticte ater)	UW	UW	UW	UW		UW	UW						UW					UW	UW	UW	UW	UW			Nests in WY
Brown-capped Rosy Finch (Leucosticte australis)													CS												" " in CO
Common Redpoll (Acanthis flammea)	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW			Irregular
Pine Siskin (Spinus pinus)		AS	AS	AS	AY	AS UW	AS	CS	CW	CW							CY	CW	CW	CW	CW	CW	CW	CW	
American Goldfinch (Spinus tristis)					CS UW	UY			CS	CS	CS	CS					UY	UY CW	UY CW	UY CW	UY CW	UY CW	UY CW	UY CW	Riparian and towns
Lesser Goldfinch (Spinus psaltria)						US			US	US	US	US													
Red Crossbill (Loxia curvirostra)		UY	UY	UY	US UW	UY	UY			UM							UY	UM	UM	UM	UM	UM			
~~White-winged Crossbill (Loxia leucoptera)~~		UW	UW	UW	UM	UW	UW																		

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Green-tailed Towhee (Chlorura chlorura)						CS			CS	CS	CS	US		US											Riparian & scrub
Rufous-sided Towhee (Pipilo erythrophthalmus)					CS	CS UW				CS	CS	CS					CS	CM	CM	CM	CM	CM	CM	CM	" "
Brown Towhee (Pipilo fuscus)									UY	UY															Mainly SE CO
Lark Bunting (Calamospiza melanocorys)					US						US	US	UM		US	US	US	CS	CS	CS	CS	CS	CS	CS	
Savannah Sparrow (Passerculus sandwichensis)					UM	CS		CS						CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	
Grasshopper Sparrow (Ammodramus savannarum)					US												US	US	US	US	US	US	US	US	In marshes
Baird's Sparrow (Ammodramus bairdii)					UM													UM	UM	UM	UM	UM	UM	UM	" "
LeConte's Sparrow (Ammospiza leconteii)																		UM	UM	UM	UM	UM	UM	UM	" "
Vesper Sparrow (Pooecetes gramineus)		CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS		CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	In openings
Lark Sparrow (Chondestes grammacus)	UM	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS		CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	" " esp. rocky areas
Rufous-crowned Sparrow (Aimophila ruficeps)																				US			US		Extreme SE CO
Cassin's Sparrow (Aimophila cassinii)																US		US	US	US	US	US	US	US	Mainly " "
Black-throated Sparrow (Amphispiza bilineata)						UM			US	US						UM			UM	UM	UM	UM	UM		
Sage Sparrow (Amphispiza belli)											US	US				US									
Dark-eyed Junco (Junco hyemalis)		CW	CW	CW	CY	CW	CW	CW	CW	CW	CW			CW	CW	CW	CW	CW	CW	GW	GW	CW	GW	GW	
Gray-headed Junco (Junco caniceps)		GY	CY	CY	UW	CY	CY	CY	UW	UW	UW			UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	UW	
Tree Sparrow (Spizella arborea)					CM	CW		CW	CW	CW	CW	CW		CW	CW	CW	CW	CW	CW	CW	CW	CW	CW	CW	
Chipping Sparrow (Spizella passerina)		US	US		AS AM CM	CS		US	CS	CS			CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	
Clay-colored Sparrow (Spizella pallida)					US	CM							UM	UM	UM	UM	UM	UM	UM	UN	UM	UM	UM	UM	

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Brewer's Sparrow (Spizella breweri)					UM				CS	CS	CS	CS				CS	CS	CS	CS	CS	CS	CS	CS		
Field Sparrow (Spizella pusilla)					UM												UM	UM	UM	UM	UM	UM	UM	UM	
Harris' Sparrow (Zonotrichia querula)					UM	UW											UM	UW	UW	UW	UW	UW	UW	UW	
White-crowned Sparrow (Zonotrichia leucophrys)		CS	CS	CS	CM	CS	CS	CS	CW	CW	CM						CM CW	CM CW	CM CW	CM CW	CM CW	CM CW	CM CW	CM CW	Winters in riparian
Golden-crowned Sparrow (Zonotrichia atricapilla)						UW																			
White-throated Sparrow (Zonotrichia albicollis)						UW											UW	UW	UW	UW	UW	UW	UW	UW	In riparian
Fox Sparrow (Passerella iliaca)		US	US		UM	US																		UM	" "
Lincoln's Sparrow (Melospiza lincolnii)		CS	CS	CS	UM	US	US	US										UM	UM	UM	UM	UM	UM	UM	
Swamp Sparrow (Melospiza georgiana)					UM	UW												UW							In marshes
Song Sparrow (Melospiza melodia)		CY	CY	CY	UY	CY	UY	UY	UY	UY							UM UM	CY	CY	CY	CY	CY	CY	CY	In riparian winter in marshes
McCown's Longspur (Calcarius mccownii)													UM	UM						CS		CS			
Lapland Longspur (Calcarius lapponicus)					UM								UM					CW	CW	CW	CW	CW	CW	CW	Farmlands
Smith's Longspur (Calcarius pictus)																		UM	UM	UM	UM	UM	UM	UM	Extreme East
Chestnut-collared Longspur (Calcarius ornatus)					UM												US	CS	CS		CS				
Snow Bunting (Plectrophenax nivalis)												UW	UW				UM	UW	UW	UW	UW	UW	UW	UW	Bare areas
Prairie falcon (Falco mexicanus)		UM	UM	UM	CS	UM	UM	UM	UY	UY	CY	CY	CM	UM	UM	CY	CY	UM	UM	CY	CY	CY	UY	UM	
Lesser Prairie Chicken (Tympanuchus pallidicinctus)																							UY		

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Goshawk	Yearlong in mtns. (winter on plains)	Uncommon	Conifer or aspen usually 9-10.000 ft elev on horiz limb 20-80 ft; May & June	Small mammals & birds (esp rabbits, hares, squirrels)	Territorial. Females often attack humans; Size varies to 6-15 mi^2	Older age classes, often in closed canopy	Intol of human disturbances, logging, road bldg.	Jackmann & Scott (1975) Craighead & Craighead (1956)
Sharp-shinned Hawk	Yearlong	Uncommon (declining in most of N. Am)	More mixed stands, even aged to old growth; most usually in dense portion of tree against trunk late May - early June	More small birds but some small mammals	In Wyo territories approx 246 A. Are mobbed by passerines. They in turn harass prairie falcons & red-tailed hawks.	Often younger stands than above esp dense stands of snow-stunted aspen.	May abandon nests if habitat modifications there or nearby	Jackman & Scott (1975) Brown & Amadon (1968)
Cooper's Hawk	Yearlong	Common (more decline in East than West)	In Colo in oak & ponderosa pine; In Wyo in aspen & conifers; 10-80 ft up, near trunk. Mid-May - June	Mainly small birds, some small mammals	Usually nest no closer than 1.5-2.5 mi apart. Less aggresive than Goshawk	Dense stands, sapling to old age	As above	Henny (1972) Brown & Amadon (1968) Henny & Wight (1972)
Red-tailed Hawk	Yearlong	Common throughout most of N Am.	Much variation, cliffs, conifers and deciduous trees; 35-90 ft ht. Nest early May-June	Mainly mammals but in some areas small birds and pheasants.	Territorial. Consideral variation in size 0.5-4.1 mi^2	Mainly older trees. Will use hard snags.	Sensitive to disturbance (logging, climbers, etc)	Gates (1972) Henny & Wight (1972) Fitch et al. (1946)
Swainson's Hawk	Summer (rare in winter)	Common (most abundant hawk on plains) Not usually found in East	Flimsier nest than above. Smaller trees but not on gnd. May & June (Often use old magpie nests; rarely on power poles)	Small mammals & insects. Some small birds, lizards & snakes	Territorial; 5.8 to 8.5 prs/100 mi^2 on Pawnee	Usually isolated trees on plains or riparian habitats.	40% of nests on Pawnee in trees planted by man; relatively tolerant of agr practices	Dunkle (1977) Craighead & Craighead (1956)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Ferruginous Hawk	Yearlong	Uncommon (Restricted in range; mainly Gr Basin & High Plains)	Low cliffs but some in trees (both conifers & broadleaves) Rarely on ground; Feb-May (Have nested on power poles)	60-90% lagomorphs & rodents; some birds, lizards etc.	Territorial; aggressive, chase other raptors near nests (chased by kingbirds, longspurs); large terr only 1.5-2.4 prs/100 mi^2 on Pawnee	Mainly mature, expansive prairies Edges of pinyon-Juniper	Readily desert nests if human disturbance in incubation. Intol of agriculture, chaining, burning, well-drilling	Snow (1974b) Weston (1969)
Golden Eagle	Yearlong	Common in R-2 (Uncommon throughout much of N Am)	Mostly cliffs but some in trees (both conifers & broadleaves) Rarely on ground; Feb-May (Have nested on power poles)	Mainly lagomorphs & rodents; scavenge on carrion; occasionally take lambs, calves deer, etc	Territorial; size varies considerably 17-50 mi^2 (even to 200 mi^2) /pr (Have alternate nests in territories) Variable defense.	Variable. Plains to timberline. Main requirement relative isolation.	Sensitive to disturbances, logging, climbing, construction	Brown (1976a) Snow (1973) Jollie (1943)
Bald Eagle	Some yearlong (In most of Region 2, a winter resident)	Some yearlong except locally in summer. Common locally in winter. (On Federal threatened spp list)	In large trees, many spp., Start in mid-April in Yellowstone	Highly variable. Heavy on fish & lagomorphs. Also feed on carrion.	Territorial (28-112 A, mean 57 A in Alaska); Defend nest area Apr - Sept	For nesting, mainly old-growth. Feed in many stages, mainly around water.	Restrict human activities within ½ mi of nest & roost trees; leave old trees	Snow (1973) Kalmbach et al. (1964) Swenson (1975)
Osprey	Summer	Uncommon R-2, mainly in NW part of region (Considered threatened or endangered in many eastern states)	Always near water, in places small loose colonies. On gnd to 60 ft dead snags, living trees, poles, duck blinds, artificial structures. Later than eagles; May - July	Fish (species varies with location)	Around nest (distance ?); will defend against man, other birds but displaced by bald eagles & Canada geese.	In forested areas, old growth (200 + yrs) 56% of which were snags (Ore)	Restrict human activities within ¼ mi of nest. Avoid TSI or logging Mar - Sept (May & June esp critical)	Zarn (1974c) Jackman & Scott (1975) Reese (1977)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Prairie Falcon	Yearlong	Uncommon to locally common. Increasing. in R-2. (In N Am. mainly w of 100th Merid)	Cliffs, low outcrops 30 ft to vertical cliffs of 400 ft; no nest, just a scrape; March - June	Ground squirrels & medium-sized birds (esp Horned Larks in winter)	Territorial. Aggressive defends against many spp of birds (On Paynee, 1.4 pr/100 mi^2)	Earlier, more open grass stages favored for hunting (Have more available prey)	Avoid human disturbance (construction, climbing, etc) in nesting period	Snow (1974a) Enderson(1964) Denton (1975) Trimble (1975a)
Peregrine Falcon	Yearlong, plus migrants spring-fall	Uncommon (On Federal Endangered Spp. List)	Cliffs (In West), similar to above	Passerine birds, waterfowl & shorebirds	Similar to above	Variable. Some in near climax situations. Mainly hunt over open areas	Very sensitive to disturbance. Restrict all human activities within ½ mi of eyries during mid-Feb to Aug	Snow (1972) Hickey (1969) Porter & White (1973) Enderson (1965)
Merlin (formerly "Pigeon Hawk")	Summer in NW Wyo; winter in most of Region 2	Uncommon. Widespread in boreal forests of N Am but not common.	In R-2, old nests of crows & magpies, mainly in conifers; May - June	Almost exclusively birds (some small mammals, insects, lizards, snakes & amphibians)	Actively defend nest & yng attacking large hawks & other birds going over ½ mi from nest	Prefer native grasslands with small groves of trees (spp & age not impt)	Not well-known. Do nest in Canadian towns; feed in winter in agr lands	Trimble (1975b) Craighead & Craighead(1940) Fox (1971)
American Kestrel (formerly "Sparrow Hawk")	Mainly summer, many migrants, some winter	Common to abundant. Very widespread in N Am	Cavity nester (snags, poles, cutbanks, cliff crevices & old bldgs) -Respond well to nest boxes	Mainly insects in summer; small birds & mice in winter	Similar to above but less aggressive. In good habitats, may nest as close as 10 ft together.	Variable. All stages as long as have openings for feeding adjacent to nest sites	Quite tolerant of man, logging, agricultural grazing as long as have nest sites (Leave snags)	Enderson(1960) Roest (1957) Willoughby & Cade (1964)
Marsh Hawk (Northern Harrier = Hen Harrier, in Europe)	Yearlong although more common in migration	Common in R-2. Widespread but thought declining in E N Am.	Ground nester in marshes or weed-fields, builds own nest; May - June	Variety of prey; mice, small birds reptiles, frogs, insects (heavy on blackbirds)	Male may have more than 1 mate; defends 1 + (up to 7 in Gr Britain) nesting areas; chases other birds & in turn is chased by many spp	Early weed-stages and marshes for nesting and hunting (Roost colonially in winter weed patches)	Rather persistent in use of grazed, plowed & burned grasslands for feeding	Brown (1976b) Hamerstrom(1969) Bent (1937)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Turkey Vulture	Mainly summer resident & migrant	Common in migration; Uncommon as nester (Widespread in U.S. but some think declining)	Cliffs, caves, & hillsides in R-2; Elsewhere in hollow logs, stumps; April - June	Mainly carrion, prefer small prey items	Just around nest; social roosts to 100 + birds after fledging	Wide variety of stages utilized	Adapts well to human inhabitation, agr, grazing, etc for feeding but secretive in nesting	Brown & Amadon (1968) Bent (1937) Coles (1938)
Mountain Plover	Summer resident	Uncommon in R-2 (locally common) Mainly found in R-2	Heavily grazed buffalograss - blue grama, flat expanses; Late April-July	Invertebrates especially ground beetles (Do not need free water)	Strongly territorial; 1 bird may defend 40 A but territories overlap (Max of 21 active nests on 160 A)	Heavy grazed but "climax" short-grass prairie (In migration utilize fallow fields)	Low tolerance to changes (pitting, etc) on nesting areas	Graul (1973,1975,1976) Baldwin (1971)
Common Snipe	Mainly summer resident & migrant. Some winter	Locally common (Circumpolar distribution. Common throughout in suitable habitat)	Wet grassy & sedge meadows, bogs, irrigated pastures May - July	Mainly inverts (insects, earthworms, crustaceans) to 20% marsh seeds in fall & winter	Male strongly defends area with displays ("bleating", "winnowing") Terr size variable (1-10 A) depending on pop density	Early hydric stages (sedge-meadow type) favored	Tolerant of & benefit from grazing. Keep veg short & manure, increases inverts.	Tuck (1972) Fogarty & Arnold (1977) Johnson & Ryder (1977)
Long-billed Curlew	Summer & spring-fall migrant	Uncommon. (appears to be declining) Range mainly Gr Basin to High Plains where uncommon	Grasslands, on gnd often near water May - June	Invertebrates (mainly insects on nesting gnd) Grasshoppers, beetles, caterpillars	Territorial. Male esp defensive of ung. Will mob carnivorous, raptors, corvids & man.	Variety of types Arid Short-grass saltgrass, stubble fields & fallow areas.	? Seems more abundant in large expanses of grassland yet use agr lands	Graul (1971) Bent (1929) McCallum et al. (1975)

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Upland Sandpiper (formerly "Upland Plover")	Summer	Common in NE. Uncommon elsewhere in R-2. Broken distrib AK-MA. Some states consider it rare.	In loosely spaced colonies, on gnd mid to tall-grass or hayfields. May - June	97% animal (insects, snails, earthworms) 3% plant (weed seeds, small grains)	Territorial, defend 1.5-15 A by aerial display Will mob predators.	Early to mid-grass & forb stages	Expanded range in E. with clearing of forests; decling with intensive agr	Bent (1929) Higgins et al. (1969) Buss (1951)
Spotted Sandpiper	Summer	Locally common, will nest to 11,000 ft elev (Common throughout most N Am)	Open terrain, prairies, dry fields, edges of ponds, reservoirs & mtn streams Mid-May - June	Insects & other invertebrates caught ashore or in shallow water	Females often have more than 1 mate; defend area near nest against other females	Early grass & forb stages if near water,	Tolerant of grazing & habitat alteration but probably less so than Killdeer	Palmer et al. (1967) Hays (1973) Oring & Knudson (1973)
American Avocet	Summer	Locally common, mainly on plains. (Mainly western distrib Rather common)	Saline or alkaline flats adjacent to water. Often on islands May - June	Aquatic inverts (true bugs, beetles, flies, crustaceans)	Very territorial yet will nest almost colonially. (Territories 20-100 yds around nest). Mob other vertebrates	Early, highly alkaline mud flats & flooded area.	Prefers bare, heavily grazed saltgrass areas	Bent (1927) Hamilton(1975) Gibson (1971)
Black-necked Stilt	Summer	Uncommon (More common in CA & UT; also occurs in FL)	Less saline situations, fresher water, emergent & grassy flats May - late June	Similar to above	As above but more territorial (more aggressive to own kind)	As above but with more emergent vegetation & grassy lowlands	Perhaps less tolerant of heavy grazing than is Avocet	Bent (1927) Hamilton(1975) Yeates (1941)
Wilson's Phalarope	Summer	Locally common, mainly in mtn parks (In sw Canada & nw U.S., uncommon)	In low herbaceous vegetation such as spikerush adjacent to shallow, quiet waters. May & June	Some seeds of marsh plants, some crustaceans & insects (bugs, flies & beetles)	No definite territory. Female defends area around male against other females.	Early grass & forb stages in wet sites (mtn meadows)	Avoids heavily grazed areas but utilizes native hay meadows	Bent (1927) Palmer et al. (1967) Höhn (1967)

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Killdeer	Summer mainly but some winter	Common, mainly at lower elevations. (Very common throughout most of U.S. & s Canada)	Typically far from water, on gravel roads, in cultivated fields (even on flat, graveled roofs). April - May	Mainly eats insects (beetles, grasshoppers & dragonflies)	Both sexes defend the territory, includes open area up to 100 yds. of nest.	Disturbed sites especially left from construction, floods, cultivation.	Tolerant of man & his activities - plowing, clearcutting	Bent (1929) Palmer et al. (1967) Phillips(1972)
Yellow-billed Cuckoo	Summer	Uncommon, mainly in East where commonest cuckoo s of Mo & Ohio Rivers.	Nest in tree, vine or shrub (av 4-10 ft) esp favor wild grape (poor nest) May - Sept	Eats many caterpillars (often forest pests); some wild berries, grapes	Need dense woods & vines for nesting & feeding; call a lot	Early shrub & sapling stages; dense riparian woods	? Quite secretive yet often nest & feed near homes	Bent (1940) Bailey & Niedrach(1965) Preble (1957)
Black-billed Cuckoo	Summer	Uncommon except in eastern part of R-2. Common in e N Am.	Prefers denser woods than Yellow-billed; deciduous or conifers, av about 6 ft up; Late May - August	Similar to above; often eats tent caterpillars; some yng birds & eggs	? similar to above	Similar to above but if anything denser stands	? More secretive	Bent (1940) Bailey & Niedrach(1965) Pettingill & Whitney (1965)
Roadrunner	Yearlong	Uncommon (In R-2, just in se Colo & sw Kans). Mainly in TX-CA where locally common.	Nest on gnd or in low shrub (rare to 20 ft in tree); April - July	Various insects, spiders, lizards, mice; some small birds & their eggs. Some wild fruits in winter	Territorial, male defends by calling & displaying	Desert shrub, chaparral types	Often in arid, overgrazed areas	Dobie (1958) Sutton (1940) Zimmerman(1970) Welty (1975)
Barn Owl	? Very secretive. Most summer residents in R-2, rarely yearlong	Uncommon in R-2 (probably more common than records incicate) Uncommon throughout most of E & SW U.S.	Old bldgs, silos, holes in cliffs & cutbanks. Will use nest boxes. No nest built. March - June (occasionally fall nestings)	Almost entirely mice & rats but some rabbits & birds	? Very nocturnal Difficult to determine	Open country. Early grass & weed stages favored for hunting	Tolerant as long as have nest & roost sites	Marti (1968,1969,1972) Otteni et al. (1972) Stewart (1952)
Screech Owl	Yearlong	Uncommon in R-2. Common small owl of most of U.S.	Cavities in many spp of trees; abandoned holes of woodpeckers; >12 in dbh >15 ft up (Mar - May) Will use nest boxes	Opportunistic feeder; mice, birds, insects	? In Mich study, 1 pr/2.5 mi^2	In Colo, mainly in old, riparian woods	? Need snags for nest sites	Van Camp & Henny (1975) Marshall(1967) Ross (1969)

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Flammulated Owl	Summer resident	Uncommon in R-2 (Considered rare & local in most of its range s B.C. to Mex)	Cavities in many spp of trees esp aspen & cottonwoods > 12 in dbh > 6 ft up. (Rarely in holes of bank swallow) May - July	Almost entirely insectivorous but takes some small mammals & birds	? Probably small	? Mature to old-aged conifers or deciduous (aspen & oaks)	? Very secretive & nocturnal	Bent (1937) Burton (1973) Marshall (1939)
Great Horned Owl	Yearlong	Common in R-2 and throughout most of N & S Am.	Use old nests of other large birds (herons, hawks, crows), also on cliffs, stumps, large tree cavities; Feb - Apr	In Colo, 90+% mammals (jack-rabbits, cotton-tails, mice) some birds, fish crayfish & insects	Aggressive around nest; home ranges in Wyo. 0.45 to 1.11 mi^2; attack other owls; are mobbed by corvids	Greatest densities in riparian hardwoods but uses many stages - weeds through old-aged forests	Rather wide tolerance; nests in towns, on plains, in mtns	Craighead & Craighead (1956) Marti (1973 & 1974)
Pygmy Owl	Yearlong	Uncommon in R-2 More common s AK to Mex.	Abandoned woodpecker holes in various spp of trees, >12 in dbh usually over 30 ft up in tree April - May	Largely on birds in nesting season, variety of other prey rest of yr	? Probably small	Open coniferous or mixed forests mature to old-age	Needs cavities but otherwise rather tolerant of habitat manipualtion	Guiguet (1960) Karalus & Eckhert (1974) Winter (1974)
Burrowing Owl	Summer resident (rarely in winter)	Common to locally abundant in West. Small populations in s FL.	Single or well separated in colonies; burrows of prairie dogs & other rodents April - June	Primarily insects (grasshoppers, beetles) but also mice & small birds	Territorial, spacing varies fr 0.1-1.98 A/pr	Mainly in grasslands but feed in early grass, forb & shrub stages	Susceptible to rodent control programs (esp of prairie dogs); limit brush control	Zarn (1974b) Butts (1969) Coulombe (1971) Thomsen (1971)
Barred Owl	Yearlong in eastern part of region	Uncommon in West; more common in East, esp in s swamps.	In forests (swampy woodlands in East) tree cavities, abandoned hawk nests; rarely on gnd. March - April	In Mo, mainly meadow mice, cottontails or cottonrats	Needs perches from which to hunt, old nests or cavities	In Minn, preferred oak woods or mixed hardwood & conifer types relatively free of dense understory	Need perch & nest trees. Leave snags.	Nicholls & Warner (1972) Karalus & Eckert (1974) Dunstan (1972)

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Spotted Owl	Yearlong	Uncommon in R-2 (On many western states endangered or threatened lists)	Cavities in living trees or clumps of mistletoe & abandoned raptor nests; in SW in caves (builds no nest)	In NW, bats, flying squirrels, crickets, mice & birds (1 record fm Colo; mainly birds)	In Ore, 200-1,000 A "home-range"; are extremely tame, often mobbed by songbirds; respond to taped owl call.	In Ore, old-growth (> 60 yds) Doug-fir/ w. hemlock with high-canopy closures & dense understories of shade-tolerant species.	Highly sensitive to habitat manipulation such as clear-cutting and overstory removal and thinning.	Zarn (1974a) Forsman et al. (1977) Gould (1974)
Long-eared Owl	Yearlong	Uncommon to rare (erratic) throughout most of U.S. & s Canada.	Usually in dense trees or shrubs (conifers or deciduous) in old magpie & crow nests (rarely build own nest) March - June	Feed mainly on small nocturnal mammals caught in open areas (< 2% birds)	Occupied home ranges of .13-.40 mi^2 in Wyo	Sapling to old-age, if dense stands. Prefer conifer plantings for winter roosts	? Utilize plantations & orchards esp in winter	Guiguet (1960) Marti (1976)

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Short-eared Owl	Yearlong (more abundant in winter)	Uncommon in R-2 (locally common some winters) Erratic arctic to Mexico.	Nests of gnd in marshes & weedy fields sometimes colonial; occasionally double-brooded (Apr - June)	Mainly mice (Microtus, Peromyscus) some birds	Size of defended areas varies considerably depending on prey abundance	Early grass & forb-stages "go-back" fields	Prefers recently disturbed, weedy areas for feeding & roosting	Clark (1976) Craighead & Craighead (1956)
Saw-whet Owl	Yearlong	Uncommon in R-2. s Canada & n U.S., but probably more common than generally believed.	Cavities in dead stub, 14-60 ft above gnd usually woodpecker hole, min dbh 12"; March - July (most in April & May)	Mice & small birds	? Probably small	Normally roost & nest in dense conifers (in migration use a variety of trees, shrubs & vines)	Very tame (tol of man) but need dense cover	Santee & Granfield (1939) Woods (1972)
Great Gray Owl	Yearlong	Uncommon (in R-2), nests in NW Wyo	Use abandoned nests of hawks, ravens & crows (April in Wyo)	Mice, rats, shrews, gophers, moles, some small birds	? Probably rather large areas considering low densities	Mature to old-age, heavily timbered areas of lodgepole, ponderosa with scattered aspen	? Probably slight. A wilderness species	Nero (1969,1970) Brunton & Pittaway (1971)
Boreal Owl	Yearlong (? locally winter visitant)	Uncommon (has nested in n Colo). Considered rare in many NW & Lake States. More common w Canada to AK.	Cavities left by Flicker or Pileated Woodpeckers in dead or living trees 10-25 ft up, usually a conifer April - May	Rodents (lemmings in north, red-backed & deer mice in south), some birds & insects	?	Mainly mature spruce-fir often adjacent to open parks older thickets	? As above	Karalus & Eckert (1974) Catling (1972) Bent (1938)
Poorwill	Summer (some may hibernate in region in winter)	Locally common throughout its range (BC to Mex)	Nests on gnd (no nest) in open ponderosa, scrub oak, or montane shrubs (May - July)	Catches flying insects at night (moths, beetles, bugs)	?	Early shrub-stages with open areas, bare gnd	Will move eggs or yng if disturbed; otherwise tol of habitat manipulations	Bent (1940) Ryder (1975) Evans (1967)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Common Nighthawk	Summer	Common in R-2 & throughout its range (most of N Am)	On gnd (no nest) between shrubs or grasses, even on flat gravel roofs (May - July)	As above	Male displays in air makes "booming" noise	Early grass & forb stages. Also over cities	Very tolerant. Frequents disturbed sites. (Pesticides can harm it & its prey)	Bent (1940) Bailey & Niedrach (1965) Bent (1940)
Black Swift	Summer	Uncommon in R-2 (very local) small populations s AK to Mex.	High cliffs, usually sprayed by waterfall, on rock ledges (June - July)	Flying insects. Caught in air during day	Small colonies	Bare rock nest sites; forage over many stages	Secretive, wilderness species. Intol of trees near nests.	Bailey & Niedrach (1965) Hunter & Baldwin (1962) Knorr (1961)
Chimney Swift	Summer	Common around towns in East Uncommon in Colo.	Now in chimneys, formerly in hollow trees. Also use silos (May - July)	As above	Colonial	Forage over many types of vegetation. Mainly over towns	Tolerant of man but needs open chimneys	Dexter (1969) Fischer (1958) Henny (1972)
White-throated Swift	Summer	Locally abundant in R-2. Common in Rockies & sw U.S.	In cracks & crevices of steep rocky cliffs, plains to 13,000 ft (June - July)	Flying insects (ants, bees, true bugs, flies, leafhoppers, beetles); obtained wholly on the wing	Territorial ?, if so small as colonial nesting & roosting	Bare rocky areas for nesting, forage widely over variety of stages	Good as long as have nest site & insects not destroyed by pesticides	Bent (1940) Bailey & Niedrach (1965) Pettingill & Whitney (1965)
Ruby-throated Hummingbird	Summer	Uncommon except in extreme east part of R-2 Common in East.	Solitary in variety of trees av 10-20 ft above gnd, attached to twig that slants downward; Riparian sites (May - July)	Nectar & small insects	Territorial. Aggressively attack own spp & other birds	Usually riparian areas; forbs for feeding; sapling to old-age for nesting	Quite adaptable as long as has good food source near water	Bent (1940) Johnson (1970) Sutton (1967)

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Black-chinned Hummingbird	Summer	Mainly in sw Colo where not uncommon. Common in extreme w & sw U.S.	Cup-shaped nest on weeds, vines, shrubs & trees (even under bridges, on perches, etc) - Very low to 30 ft. Often build on old nests (April - June)	Nectar & insects in flowers also "fly-catches"	Territorial. Similar to above	Mainly feeds in early forb-stage but frequents shrub-desert & canyon vegetation	Arid country bird utilizes disturbed areas, orchards & feeders	Demaree (1970) Bent (1940) Ligon (1961)
Broad-tailed Hummingbird	Summer nester	Common to abundant in mtns. Wyo & NV s into Mex.	Small, cup-shaped nest on branches of shrubs or trees (many spp) 3-50 ft	Nectar & insects from flowers of penstemon, lark-spur, agave, gilia gooseberry, willow & at sapsucker drillings	Territorial both about nesting area & feeding areas. U-shaped court-ship flights	Variable, mainly "edges" & openings where many flowers early forb & shrub-stages	Good, frequently around burns, clear-cuts, road cuts & flowers in yards	Austin (1970) Calder (1973 a & b) Bailey & Niedrach (1965)
Rufous Hummingbird	Spring - fall migrant	Common to locally abundant (esp around feeders) Nests AK to OR where common.	Usually low on trees or shrubs, often builds new nest on old one (April - July)	Nectar & insects, wide variety of flowers esp red-colored	Very aggressive attacks other larger hummers esp at feeders yet nests often almost colonially.	Similar to above	As above	Horváth (1964) Armitage (1955) DuBois (1938)
Calliope Hummingbird	Mainly migrant spring - fall; some nest in NW Wyo & in Bighorn Mtns	Locally not uncommon. More common in n Rockies & w Coast	Similar to Broad-tail, often on small branch under a larger branch for protection (2-70 ft above gnd) (June - July)	Similar to above plus spiders. Also hawks for insects on wing.	Aggressively defends nesting & feeding areas (latter even in migration); attack other hummers	Similar to above	As above	Bent (1940) Calder (1973a), Bailey & Niedrach (1965)
Belted Kingfisher	Mainly summer but some places yearlong	Uncommon to Common, most of N Am.	In burrow, eggs laid on floor of chamber at inner end of hortz. tunnel excavated in earthen bank by the Kingfisher (April - May)	Small fish, cray-fish, lizards. (Will take trout at hatcheries) rarely fruit & small birds	Territorial. In Minn 1 pr/ 1.8 mi^2 yet some males went 5 mi from nest to feed	Riparian habitats streams & lakes	Good, often in towns & along highways wherever perches near water	Cornwell (1963), Bent (1940) Eipper (1956)

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Common Flicker	Yearlong	Common throughout N Am.	Excavates holes in dead trunks or limbs (many spp); 12" dbh min; usually 6' ht; May & June	Over 50% diet ants, mainly feeds on gnd. In fall eats acorns & corn. Some fruits & berries	27-320 A/pr (excavates 1 cavity/yr)	Prefer open habitats (mature to old-age stands for nesting); feeds in yng-old-age stands	Very tolerant of man's habitat alterations (needs some snags).	Bock (1971) Jackman & Scott (1975) Hepp (1935) Kilham (1959) Shook & Baldwin (1970)
Red-bellied Woodpecker	Yearlong (where occurs)	Common in eastern part of R-2. Common in most of range. (E & SE U.S.)	Cavity nester. Digs holes in live or dead tree, stump, utility pole, or bldg 5-70 ft up, will use nest box (April - June)	Insects obtained by surface-gleaning trees; some grain, berries tree fruits	Territorial size? (Densities, 2-6/100 A in MD)	Mature to old-aged deciduous trees	Fairly tolerant of changes - towns & parks	Stickel (1965) Jackson (1976) Reller (1972) Conner et al. (1975, 1976)
Red-headed Woodpecker	Summer nester	Common to uncommon; mainly east of mtns. Uncommon in most of range (MT to FL)	Cavity nester. Similar to above but prefer limbs w/out bark & start at pre-existing crack. In more open areas than red-bellied. 24-65 ft ht; 1-8 in. opening (May - July)	Does considerable flycatching. Eats many spp of insects occasionally yng of other birds; nuts & acorns	Territorial even on wintering area (12 in 4 A in Maryland)	As above but more open woods, riparian sites & power poles	More tolerant of habitat manipulations as long as some old trees left	Jackson (1976) Kilham (1958) Bent (1939) Beal (1911) Lincoln (1917)
Lewis' Woodpecker	Summer (most move down slope in winter)	Uncommon (locally rare) Elsewhere in U.S. locally common (WA to NM)	Use deciduous trees in riparian situations dead stubs or live trees with rotted heartwood; 15" dbh min 5-75' ht; May & June	60% of time flycatching (need insect-rich understory); 30% ground-brush foraging	2.5-15 A/pr (excavates 1 cavity/yr)	Mainly prefers park-like ponderosa with understory of various shrubs (logged or burned forests when in early brush stage)	Attracted to burns 10-30 yrs after burn. Intol of heavy grazing that destroys understory	Jackman & Scott (1975) Bent (1939) Bock et al. (1971)
Yellow-bellied Sapsucker	Summer	Common (most abundant woodpecker in aspen). Common Yukon to Nfld.	Fomes- infected aspen, 10" dbh, usually 15' ht; mainly in June	Insectivorous in nesting season then sap & cambium during postnuptial molt	5-12 A/pr (excavates 1 cavity/pr/yr)	Mature to old aspen or other poplar such as cottonwoods (rarely conifers)	Poor - needs larger trees	Crockett & Hadow (1975) Tate (1969) Oliver (1970) Foster & Tate (1966) Kilham (1977) Erskint & McLaren (1972, 1976)

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Williamson's Sapsucker	Summer	Uncommon in R-2 & throughout most of its range (w mtns)	In Colo uses ponderosa but prefers aspen; excavates hole 5-60' up; min 10" dbh; late May to late June	Insects (87%) mostly ants; some sap & cambium; occasionally berries & acorns	? In Ore, recommend 150 snags/ 100A for max pop (Territories approx. 10A)	Mature (80-159 yrs) and old (160 yrs) in Ore.	Restricted to mature & old stands	Crockett & Hadlow (1975) Bent (1939) Oliver (1970) Baldwin (1958)
Hairy Woodpecker	Yearlong	Common in R-2, fairly common most of N Am.	Coniferous & deciduous trees, 10" dbh min, usually above 15'; May & June	Mainly animal matter (beetle larvae, ad beetles, spiders, millipeds & aphids)	6-9 A/pr (excavates 1 cavity/ yr)	As above	? - Believed less tolerant of changes than Downy	Baldwin (1963) Conner (1973) Bent (1939) Lawrence (1968) Koplin & Baldwin (1970)
Downy Woodpecker	Summer Spring-Fall Winter	Fairly common to uncommon in R-2. Commonest eastern woodpecker.	Mainly deciduous trees ~6" dbh min; mainly May & June	75% animal matter (beetles & their larvae, ants); some fruit	5-9 A/pr (excavates 2 cavities/yr)	Young, mature & old-stands of trees (40 yrs & older)	Fair - will feed in weeds (esp mullein) & riparian shrubs	Kiesel (1972) Jackson (1970) Koplin (1969) Kilham (1970) Compton (1930)
Ladder-backed Woodpecker	Yearlong	In R-2 only in SW Kans & SE Colo where uncommon. Fairly common in main range, TX to AZ.	Cavity in various trees (willow, cottonwood, walnuts, oak, hackberry) also large cacti & yucca. Sometimes poles & posts 2-20 ft above gnd (May - June)	Insects, esp woodboring beetles, caterpillars & ants (in SW, saguaro cactus fruit)	Territorial, male defends against own spp with displays & calls (& in Baja Calif against Nuthall's Woodpeckers)	Shrub desert, mature deciduous riparian woods; also pinyon-juniper	Occurs in areas of drought & heavy grazing	Short (1971) Bent (1939) Austin (1976) Bailey (1928)
Black-backed Three-toed Woodpecker	Yearlong (sometimes farther south in winter)	In R-2, mainly n. states where uncommon (has shown increase in NW Wyo). Uncommon AK to Nova Scotia.	Normally excavates 3 cavities/yr/pr; in 12 in dbh min conifers snags or live trees w/dead heartwood (May -June)	75% wood boring beetle larvae, weevils & other beetles. Some wild fruit, mast & cambium	Territorial, each pair probably about 75 A	Mature & old - coniferous forests	Increases in areas following following fire & with bark-beetle infestations	Bock & Bock (1974) Wickman (1965) Bangs (1900) Kilham (1966) England (1940) MacLellan (1958 & 1959) Ruge (1968 & 1969)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Northern Three-toed Woodpecker	Yearlong	Uncommon (more abundant in bark-beetle outbreaks) Rare in E; locally common in W.	Mainly Englemann Spruce 12" dbh min; 15 ft up; in June.	Insectivorous (75% of diet destructive beetle larvae)	Over 106 A/pr (35-106 diff. studies); excavate 3 cavities/yr. (need standing dead trees)	Old growth (decadent) esp in bark-beetle outbreak	Little, needs large tracts of old growths	Bock and Bock (1974) Hogstad (1976) Knight (1958) Koplin (1969) Massey & Wygant (1973) Olson (1953)
Eastern Kingbird	Summer	Common in plains areas and in eastern riparian woods Common, most of e U.S.	Bulky cup on tree limb well out fm trunk 2-60 ft up (av. 10-20 ft), often over water (May - July) - 1 brood	90% insects taken on the wing; some fruit	Very aggressive against many spp including large raptors & carnivores	Open savannah hardwoods, sapling to old-age; shrubs & orchards	Tolerant of man & his activities	Graber et al. (1974) Bailey & Niedrach (1965)
Western Kingbird	Summer	Common nester on plains & in some mtn parks Mainly w of 100th meridian where common.	Similar to Eastern Kingbird only often drier sites, also on corral posts & utility poles (May - June) - 1 brood	Mainly insects caught on wing (bees, wasps, grasshoppers, bugs and flies)	Very aggressive, defending nest area from own & other spp of birds	Early to old-trees, isolated or riparian sites	Very tolerant of man & his activities, of grazing, burning, etc as long as have nest sites	Graber et al (1974) Dick & Rising(1965)
Cassin's Kingbird	Summer	Mainly in southern part of R-2 where rather uncommon (Fairly common in sw U.S.)	Well made nest in saddle or crotches of horizontal limbs of cottonwoods or other deciduous trees often in canyons (May - June)-1 or 2 broods?	Very similar to above	Similar to above but less noisy	? riparian sites, yng to old trees	Less likely around farms than above	Bent (1942) Bailey & Niedrach(1965) Ligon (1961)
Scissor-tailed Flycatcher	Summer	Mainly in s. Kans & se Colo in R-2 where common in Kans, uncommon in Colo. (Common in OK & TX)	In open country with scattered trees, usually 5-35 ft up, osage orange, elms, & on power poles (May - July)	Insects caught on wing	Territorial. Very aggressive Aerial attacks on crows, hawks, etc	? similar to above although more in farmland	Tolerant, uses shelter belts & trees around farms (Seems to be extending range)	Warner(1966) Johnston(1964) Sutton(1967)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Great-crested Flycatcher	Summer	Mainly eastern edge of R-2 where not uncommon (Common in e U.S.)	In woodlands, orchards & swamps, cavities natural or woodpecker holes, in dead trees av 10-20 ft ht will use nestboxes & bldgs (May - July)	Mainly insects such as moths & caterpillars, beetles, crickets, bugs etc but some fleshy fruits	Territories vary fm 0.6-11.0 A/pr	Various stages in East including climax oak-maple forests	Tolerant as also occurs in orchards & in residential habitats (Seems to adapt to logging & herbicides)	Graber et al. (1974) Twomey (1945) Scott et al. (1977)
Ash-throated Flycatcher	Summer	Common mainly in pinyon-juniper. (Also common throughout range s OR to Mex.& TX)	Cavities. Woodpecker holes, exposed pipes, nest boxes. Many spp of trees - mesquite, ash, oak, juniper, cottonwood (May - June)	92% animal matter (beetles, bees, wasps, bugs, flies, caterpillars, moths, grasshoppers, spiders); Vegetable matter - fruits, mistletoe	? probably similar to above but perhaps less aggressive to other birds	Mainly desert shrub & mature pinyon-juniper	Tolerant of drought, grazing & some pinyon-juniper control if in small flocks	Scott & Patton (1975) Bent (1942) Bailey & Niedrach (1965)
Eastern Phoebe	Summer	Common in eastern part of R-2; uncommon in se Colo & Black Hills. (Common c Canada & e U.S)	On shelflike projections on & in bldgs, under bridges, rocky ledges; large well-constructed nest; usually near water (Late March - July) - 2 broods	Mainly insects (bees, wasps & ants) but even small fish & fruits	Territories around nest sites which usually limit to 1 pr/ 30 A or fewer (In Ill House Sparrows compete)	Shrub stage or yng trees near water	Very tolerant of man, his buildings & shelter belt plantings	Graber et al. (1974) Binford (1957) Johnston (1964)
Say's Phoebe	Summer(late fall & early spring migrant)	Common locally, mainly on Great Plains & west but also AK to Mex.	Ledges on cliffs, in earthen banks, under bridges & in houses (drier sites than above) May - July	Flying insects (beetles, wasps, bees, bugs, flies) but also caterpillars. Some berries	Territorial but territories usually widely spaced due to lack of nest sites	Open country, shortgrass, sagebrush, broken foothills & borders of deserts	Tolerant of man, & changes he causes (grazing, farming)	Bent (1942) Smith (1970a) Bailey & Niedrach (1965)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Acadian Flycatcher	Summer	Uncommon. In extreme eastern part of R-2 (mainly SE Kans). Common in midwest & SE.	Fairly saucer-shaped, basket swung between horiz twigs on a slender limb, lower branches of lrg trees far out fm trunk (8-20 ft up) May - June	Flying insects (mainly beetles)	Territories in Ill 1.7-4.3 A/pr	Damp riparian forests with understory (often flooded mature hardwoods)	? probably low tolerance (seems to be declining in Ill)	Graber et al. (1974) Harrison (1975) Johnston (1964)
Willow Flycatcher (formerly Traill's)	Summer	? (Status unclear as identification difficult)	Older & willow thickets close to streams, beaver ponds, etc. Early June - Early Aug	Insectivorous (feeds in brushier, more streamside situations)	Need song perches, taller bushes or low telephone wires	Early shrub to pole-stages	Greater than above; comes in after logging, fires, etc. once into taller brush	Graber et al. (1974)
Least Flycatcher	Summer	Mainly Black Hills & S Dak in R-2 where uncommon (more common in East)	In crotch or fastened to limb of deciduous or coniferous tree, av 10-20 ft up (May - July)	Insects caught on wing	? Territorial (1 pr/15 A in Ill study)	Open woodlands, orchards, or city parks - older trees (ecotones)	? probably little tolerance to changes	Graber et al. (1974) Hespenheide (1971)
Hammond's Flycatcher	Summer	Uncommon in R-2, more common in NW & in CA.	Both aspen & conifers in crotch of main stem or outer branches usually 30-50 ft up in aspen; 4-20 ft up in conifers; June - July	Insectivorous (similar to pewee & western but usually feeds higher in canopy)	More conifers than above (in Mont ea territory 1.5-3.8 A)	More in mature & old-age classes (Utilizes more closed canopies)	Less tolerant than Western Flycatcher to thinnings, fire, or logging	Davis (1954) Beaver (1967) Manuwal (1970) Flack (1976)
Dusky Flycatcher	Summer	Uncommon mainly in w Colo & most of Wyo. More common in Gr Basin.	Broken coniferous forest or aspen & mahogany woodland	Insects caught in air over brushy veg	Territorial but details not reported other than attacks own & other spp	Yng to old-age conifers, aspen or brush	Probably more tolerant than Hammond's	Johnson (1963) Bent (1942) Davis (1969)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Gray Flycatcher	Summer	Uncommon, sw Colo & sw Wyo. Restricted range. Fairly com. in NV & UT.	Pinyon-juniper or big sagebrush	Insects from surface of open ground (less often catches aerial insects)	As above	Similar but mature pinyon-juniper and/or big sagebrush	? probably tolerant to moderate brush control if in small blocks	Johnson (1963) Bent (1942) Davis (1969)
Western Flycatcher	Summer	Fairly common in R-2 and AK to Mexico.	Canyons, rocky ledges old bldgs, mixed woods; nest on ledge in bldg or low in tree (flap of bark on aspen) < 12 ft ht June & July	Insectivorous (similar to above but somewhat smaller sized)	Similar to above but usually more in aspen & closer to water	As above but feeds mainly lower (more 0-20 ht)	Probably more tolerant than W. Wood Pewee (can utilize earlier stages for feeding)	Beaver (1967) Davis et al. (1963) Beaver & Baldwin (1975)
Eastern Wood Pewee	Summer	Common in eastern part of Region - 2 (wanderer to west)	Nest on horiz limb, live or dead tree, typically far out from trunk 15-65 ft above ground (late May - late July)	Flying insects	Territories 1.4-8 A/pr in Ill. Very belligerent near nest. Chase many vertebrates	Varies but generally mature hardwoods & edges	? Seem to tolerate wide variety of spp & ages of trees in East	Graber et al. (1974) Johnston (1964) Bent (1942)
Western Wood Pewee	Summer	Common in R-2 & AK to Mex.	Pine & aspen; open cup nest usually on horiz branch 10-50 ft ht; early May to mid-July (In Colo, prefer south slope aspen)	Insectivorous; flies-44%, moths-5% & beetles-5% (feeds in aspen & conifers)	Mix of conifers & aspen (densities of 5-10 prs/100 A recorded in Colo)	Mainly sapling to mature timber (most feeding at 20-30 ft above gnd under canopy)	? moderate thinnings & grazing tolerated	Beaver (1967) Bent (1942) Bailey & Niedrach (1965)
Olive-sided Flycatcher	Summer	Uncommon to fairly common in R-2. Only fairly common AK to Nfld.	Mainly in spruces; nest well concealed in horiz branch 5-70 ft up; June & July	Typical flycatcher eats flying insects esp bees & ants.	Territorial. Males quite aggressive against own spp. Need song perches (dead top of tree)	Mainly mature and old-ages (Prefer near bogs, beaver ponds)	Probably minimal - a wilderness, climax-species	Bent (1942) Harrison (1975) Bailey & Niedrach (1965)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Vermilion Flycatcher	Summer	Uncommon in R-2 wanders in from SW where locally is common	Usually in mesquite, willows, sycamores, on horiz forks; 8-20 ft up. Generally near water (In Tex, nest March - June)	Insects caught on the wing but also lands to catch grasshoppers & beetles	Aggressively defend area near nest from own & other spp of small birds	Variable. Bird of hot, semiarid to arid deserts. Early to old shrub-stages	Tame. Tolerant of man & his effects on ecology if has nest, trees, & water	Taylor & Hanson (1970) Smith (1970b) Bent (1942)
Horned Lark	Yearlong	Common to abundant in open areas on plains and above timberline N Am & Eurasia.	On ground, low vegetation, ideally short grass prairie or open, dry alpine tundra. April - July (2 broods on plains)	Omnivorous - Insects to yng; seeds & grain much of year	Territorial. On Pawnee NG 0.29-1.54 ha/pr	Early grass & weed stages	Tolerant of overgrazing, drought & clean following	Boyd (1976) Beason & Franks (1973,1974) Pickwell (1931)
Violet-green Swallow	Summer	Common in R-2 and AK to Mexico.	Similar to Tree Swallow but drier sites; will use rock crevices, old cliff swallow nests (May - June)	Exclusively insects, flying forms	Territories small almost colonial	As Tree Swallow but tolerates drier sites	Similar to Tree Swallow	Edson (1942, 1943) Combellack (1954) Bailey & Niedrach (1965)
Tree Swallow	Summer	Fairly common in R-2. Common most of range (AK to Nfld)	Holes, cavities & artificial nest boxes, usually near water (May - June)	Mainly insects (esp midges) but up to 20% plant material, esp in East eats bayberries	Territories small, almost colonial (several in one tree)	Nests in mature to old-age classes; Forages over all successional stages (esp over water)	Often nest in standing snags in old burns, in clearcuts	Austin & Low (1932) Stocek (1970) Graber et al. (1972) Chapman (1935, 1939, 1955) Lowo (1933)
Bank Swallow	Summer	Less widely distributed than Rough-wing but locally abundant, AK to Nfld to TX.	Burrows into sand-banks, gravel pits & roadcuts (even in sawdust mounds) May - June	Flying insects, caught either over water areas or grasslands	Colonial but do maintain rather uniform spacing when perched on wires or in placement of burrows	Disturbed sites, erosion areas	Tolerant of man. Often gain habitat from construction (also loss of nests)	Stoner (1936) Graber et al. (1972) Harrison (1975)

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Rough-winged Swallow	Summer	Widely distributed but smaller colonies than Bank Swallow (Fairly com in U.S.)	Similar to above but often drier sites. (Often in same colonies as Bank Swallows) Even in bldgs (May - June)	As above	Similar to above	Similar to above	Similar to above	Lunk (1962) Ricklefs (1972) Graber et al. (1972)
Barn Swallow	Summer	Common to abundant In barns or sheds & under bridges & in culverts (As many as 55 in one barn)	Open mud saucer plastered to beam or eaves, profusely lined with poultry feathers (May - July)	As above	Similar to above	Variable. Mainly grasslands or farmland near water.	Benefits from man: bldgs & bridges (extending range)	Samuel (1971) Mason (1953) Graber et al. (1972)
Cliff Swallow	Summer	Common to abundant outside of bldgs, on cliffs and under bridges (up to 800 in colony)	Closed, jug-like mud nest (gourd-shaped) (May - June)	As above	Similar to above	Similar to above but usually near cliffs (foothills, mesas)	Similar to above but suffers from House Sparrows and human vandalism	Buss (1942) Samuel (1971) Emlen (1954)
Purple Martin	Summer	Very local in West, more common in East U.S. & Canada.	Usually colonies in bird houses in East, more in old woodpecker holes in West (May - June)	As above	Colonial but strongly defensive of individual nest sites	Need dense groves of trees in which to roost	Very sensitive to pesticides (declining in many areas). Snags important in West	Allen & Nice (1952) Jackman & Scott (1975) Graber et al. (1972)
Gray Jay	Yearlong	Uncommon to common in R-2 & AK to Nfld & in w mtns.	In conifers, nest early even in Feb; bulky compact nest usually 4-30 ft	Omnivorous; insects (beetles, grasshoppers); conifer seeds, berries, small mammals, carrion	In Ontario, territories large, about 1½ sq. mi.	? Pole - to old-growth	Little - Will use burns & clearcuts if mature conifers nearby	Goodwin (1976)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Blue Jay	Yearlong (some winter wandering)	Formerly uncommon in West, becoming more common (Common in E)	Trees, bushes & shrubs (10-35 ft up) - Have nested in bldgs (Late March - June)	Omnivorous (acorns, weed seeds, grain; insects; eggs of sm birds & garbage)	Territorial but with ill-defined territories (Mob other birds)	Uaually mature to old-aged riparian deciduous woods & urban areas	Good. Often around farming & grazing areas but not far from water	Arnold (193) Bent (1946) Goodwin (1976)
Steller's Jay	Yearlong	Common in mountains AK to Mexico	Needs fairly large conifers, nest 10-25 ft up; (20 Apr to 25 May)	Omnivorous (acorns, conifer seeds, insects, eggs & yng of smaller birds)	? territories rather vague	Late (for nesting); mid to late & over mature (for feeding)	? Often around burns, clear cuts	Bent (1946) Goodwin (1976) Brown (1963)
Scrub Jay	Yearlong	Common (more abundant in s Colo). Locally common in w U.S. & in FL.	Dense brush, thick-walled cup nest, 4-12 ft above gnd; (Early May)	Omnivorous (acorns a staple food) - many insects, even lizards & bird's eggs	About 30 A of brush-shrub type/ territory	Mid (shrub-stage)	Tolerates fire, grazing, logging in small flocks	Bent (1946) Wolfenden (1974) Goodwin (1976) Wolfenden & Fitzpatrick (1977)
Black-billed Magpie	Yearlong (may leave some areas in winter)	Very common to abundant (more so in riparian habitat) Common AK to n NM.	Broad; wide variety of trees & shrubs; huge globose nest April - May (later at higher elevations)	Omnivorous but mainly animal matter (insects, yng birds & eggs, lizards, carrion)	Min. of 6 A/pr with suitable nest tree	Early to mid (need dense brush in which to roost)	Tolerant of habitat chgs but not too close proximity of man	Bent (1946) Goodwin (1976)
Common Raven	Yearlong	Fairly common in mtns & mesa country, less so on plains. Rare & local in Appalachians.	Variable. Some nest in subalpine cliffs; others in deserts (In pinyon-juniper, Doug fir, etc) (April - May)	Omnivorous (carrion, small mammals, birds & their eggs, insects, acorns, seeds)	Size of territories variable but large (>1 mi^2) & larger in arctic or times of food scarcity	Alpine tundra to early grass-weed stages in deserts	Tolerant of habitat chgs but not too close proximity of man	Holyoak (1967) Goodwin (1976) Bent (1946)

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White-necked Raven	Yearlong	Common to abundant in sw Kans & se Colo (in R-2) Common s AZ to W TX.	Trees, shrubs, old bldgs, windmills & abandoned farm machinery, power poles. Nests often include wire. Sometimes colonial (June)	Omnivorous, Much as above but more sorghums & corn	? smaller territories than above. Colonial where shortage of nest sites	Mainly arid grasslands & deserts, often near farms	In N Mex, herbicides reducing nesting habitat	Goodwin (1976) Davis & Griffing (1972) Aldous (1942)
Common Crow	Yearlong	Common most of N Am. (abundant locally in some winter concentrations)	Riparian deciduous woodlots but also in ponderosa pine in Black Hills (May - June)	Omnivorous (28% of food of adult is of animal origin - insects, bird eggs, carrion, also eat corn & sorghums)	Territorial but sizes variable. Colonial in some areas.	More humid areas than used by the ravens but various stages (yng to old)	Tolerant of changes, frequent cities & agricultural areas	Kalmbach (1939) Emlen (1942) Platt (1956)
Pinyon Jay	Yearlong (but flocks wander widely)	Common in pinyon-juniper less common elsewhere throughout w U.S.	Most areas pinyon-juniper but ponderosa pine in w Nebr & w S Dak. Usually 6-20 ft up in tree (Early Mar - April)	Mainly pine seeds (several spp), even yng cones; some insects & sm mammals (Sunflower seeds at feeders)	Very sociable, nest in colonies; more in nomadic flocks (54 nests in 124 A in Ariz)	Yng to mature pinyon-juniper (need mature trees for max seed production)	P-J control reduces nesting & feeding habitat	Balda & Bateman (1971,1972) Bateman & Balda (1973) Ligon (1971)
Clark's Nutcracker	Yearlong (considerable wandering to other cover types)	Common to uncommon (considerable variation depending on cone crop) w U.S. & w Canada	In conifers (pinyon-juniper to spruce-fir) at or near end of horiz branch, protected from wind (March or early Apr)	Mainly seeds of conifers (esp pinyon, limber & white-barked pine) also insects, small mammals, eggs & yng of birds	Are territorial but seek food outside defended area	Mature to old for nesting; all stages for feeding	Little for nesting; considerable tolerance for feeding areas	Bent (1946) Mewaldt (1956) French (1955) Vander Wall & Balda (1977)
Black-capped Chickadee	Summer	Common (locally abundant), most of N Am.	Cavities they excavate in variety of spp min 4" dbh, 6' up; dead-core; June - July	Omnivorous (70% animal, mainly caterpillars & eggs of insects; 30% plant - mainly conifer seeds)	Each pr. requires cavities for nesting & roosting; 10-20 A of space/ pr	Mid to old, as long as cavities or dead trees in which to make cavities	Good. In wide range of veg types & age classes	Holleback (1974) Brewer (1963) Smith (1967a&b) Dixon et al. (1970) Duvall (1945a) Odum (1941 & 1942)

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Carolina Chickadee	Yearlong	Only in se Kans (in R-2) where is common. Fairly common se U.S.	Similar to above	Similar to above	Perhaps smaller territories than black-caps (1.3-4.3 A/pr) Both spp will defend against other spp	Similar to Black-cap but in more mesic & perhaps wet forests	? probably less tolerant of changes that open forest more	Brewer (1961,1963) Dixon (1963) Tanner (1952)
Mountain Chickadee	Yearlong	Common (some years abundant) w mtns.	In Colo prefers aspen (more in live than dead); cavities dug by woodpeckers or chickadees; 4" dbh min, > 6 ft ht; June - July	Mainly insects (including lodge-pole needle miner & spruce aphids); some seeds, spruce buds & fruit (may spread mistletoe)	Probably similar to black-capped chickadee	Mid to old, as long as cavities or dead trees in which to make cavities	Fair. More restricted to conifers than black-capped chickadees are	Manolis (1977) Dixon & Gilbert (1964) Hudler (1976) Dixon (1965) McCamey (1962)
Tufted Titmouse	Yearlong	Common in eastern part of Region (eastern ½ of Kans & Nebr) Common in se U.S.	Cavity nester in abandoned woodpecker holes or natural cavities 3-20 ft in ht (March - June)	Spring & summer mainly animal matter (insects); in fall & winter, acorns & berries	Territorial - size?; also defend winter ranges	Mainly mature to old-deciduous forests	? do nest in towns & parks	Brackbell (1970a) Laskey (1957) Offutt (1965)
Plain Titmouse	Yearlong	Common in s & sw Colo, also in CA to w TX.	Oak and pinyon-juniper forests 5000-7000 ft; usually natural cavities or old woodpecker holes, will use nest boxes (April - May)	43% animal matter (mainly insects); 57% plant matter (cherries & pulp of larger fruit seeds of weeds & oaks)	Territories used year round - defended mainly by song (3.3 - 12.5 A)	In Colo, mainly mature scrub oaks pinyon or juniper	? Doubtful if will use areas heavily logged or where pinyon-juniper is knocked down.	Dixon (1949, 1961, 1962) Bent (1946) Bailey & Niedrach (1965)
Bushtit	Yearlong	Fairly common in Colo (mainly s & sw). Abundant on W Coast & in sw U.S.	Long pendant nest with small entrance near top, usually in pinyon or juniper in Colo (April - May)	In Calif eat 81% animal matter (insects & spiders); 19% plants (mostly seeds)	Territories about 1.1 A in Calif (smaller than titmice or chickadees) Travel in flocks	Mainly in early to mature shrub and pinyon-juniper types. Forage on weeds	Seemingly more tolerant than above as in brushy types.	Addicott (1938) Hertz et al. (1976) Bent (1946)

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White-breasted Nuthatch	Yearlong	Fairly common in R-2 & most of U.S.	Natural cavities within living trees min 12" dbh; usually > 15" up	Mainly insects in summer (caterpillars, ants & beetles); nuts in winter	Territories relatively large (~40 A) to include nest & roosting cavities	Mainly mature & old	? minimal. dependent on older age-classes	Aldrich (1944) Anderson (1976) Bent (1948) Stallcup (1963-68) Kilham (1968-72) Young (1965)
Red-breasted Nuthatch	Winter	Uncommon, more common in n U.S. & Canada.	Cavities they or woodpecker dig; 12" dbh; > 15' ht in rotten stubs or branches (many spp); May - June	Little known. Seeds of pines, spruce & other conifers. Various insects.	? territorial probably smaller territories than above	Mainly mature & old	? usually nest in spruce-fir winter in ponderosa	Bock & Lepthien (1972) Kilham (1973) Bent (1948) Banks (1970)
Pygmy Nuthatch	Yearlong	Common to abundant in R-2 & locally B.C. to Mexico.	As above but mainly in ponderosa pine & aspen - late May to early Aug (2 broods)	About 80% animal matter (insects mainly); remainder conifer seeds	Much smaller, (mean about 3 A) almost colonial, very gregarious outside nesting season	Mainly mature & old	? mainly restricted to mature & old ponderosa	Norris (1958) Bock (1969) Winternitz (1976) Knorr (1957) Bleitz (1951)
Brown Creeper	Yearlong (in mtns), winter resident (on plains)	Not uncommon (some winters common) in R-2 & most of U.S.	Nest behind loose slab of bark on living or dead tree (many spp) av 5-15 ft up (May - July)	Insects, their yng & eggs (gleaned off bark) Some plant material (mast)	Territorial but several will roost together in winter	In mature to old-conifers (lodge-pole; spruce - fir, Doug - fir) for nesting; many spp in winter	Slight in nesting grounds (needs closed canopy, moist forests)	Bradbury (1919) Willson (1970) McClelland & Frissell (1975)
Dipper	Yearlong (forced out of higher areas to plains some winters)	Common along most mountain streams, AK to Mex.	Domed nests of moss, leaves & grass on rock walls or under bridges located so spray dampens nest (April - July)	Insects, aquatic invertebrates & small fish	In nesting season about ½ mi of stream. Both sexes defend separate winter territories	Streams through many vegetative types (foothills to alpine), grass, brush, timber	Good as long as not excessive siltation, stream channelization	Hann (1950) Bakus (1959 a & b) Price & Bock (1973)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
House Wren	Summer	Common in R-2, and throughout U.S. & s Canada	Natural cavities & old brush-piles; old woodpecker holes; much debris; late May to mid-July (2 broods)	98% animal matter-grasshoppers, beetles, caterpillars, bugs & spiders	about 1 pr/A or higher densities	Deciduous thickets, riparian woods & canyons (needs early shrub-stage understory)	Quite tolerant of most (except heavy grazing that destroys understory)	Bent (1948) Kendeigh (1941 & 1963) Gross (1948) Brackbill (1970b) McCabe(1961 & 1965)
Winter Wren	Winter (in R-2) Nests in Montana; old records list Wyo and Colo	Uncommon in R-2 & in nw & ne U.S. (also found in Europe)	Usually in coniferous forests or on rocky outcrop, under upturned roots (Apr - June, in Wash.)	Mainly insects & spiders, some seeds in winter (will immerse heads in water when feeding)	Extremely territorial. Territories compressible (.08-3.6 A)	Doug-fir, deciduous mixed woods; usually along streams in winter where a lot of over hanging debris	? - As long as have brushy bordered streams with "log-jams" probably will winter	Armstrong(1955) Bent (1948)
Bewick's Wren	Yearlong	Common is s & sw Colo; uncommon in sw Wyo & nw Colo Uncommon & local in Appalachians.	Some in primitive sites (knothole in fallen trees, woodpecker holes, brush heaps); many in bird house, cans, mailboxes, etc (Apr - June)	In Calif, 97% insects (bugs, beetles, scales, plant lice); 3% plant matter (small seeds)	Territorial year-round (6.1-11.8 A) In places territories overlap with House Wrens'	In Colo, mainly in dry canyons, oak-brush & pinyon-juniper, mature to old-age	? - Rough winters probably more impt than habitat alteration	Bibbee (1948) Kroodsma (1973) Miller (1941)
Carolina Wren	Yearlong in se Nebr & e Kans (in R-2)	Uncommon in Nebr; common in se Kans (a few records for Colo) Common in se U.S.	Usually brushy thickets, in natural cavity, woodpecker hole, birdhouse, under bridges (to 10 ft above gnd) (Apr - Aug)	In East 94% animal matter (nearly all insects); 6% plant (wild fruit, seeds & acorns)	Territorial	Deciduous woods with brushy understory; also early shrub stage	Seems to do well in "go-back" brushlands	Bent (1948) Nice & Thomas (1948) Laskey (1948,1950)
Cactus Wren	Yearlong	Only recorded from extreme se Colo where uncommon. Common in sw deserts, s CA to sw TX.	Normally largely football shaped mass of coarse to fine plant fibers in cholla cactus or thorny shrubs	Insects but eats more seeds & fruits than most wrens	Rather large territories (3-7A)	Late desert-shrub types	Occurs in areas subject to drought & overgrazing	Anderson & Anderson (1961-1973) Hensley (1954)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Long-billed Marsh Wren	Mainly summer (a few winter)	Locally abundant in marshes of cattail or bulrushes in R-2 & throughout much of U.S.	Oblong-globular structure attached to emergents such as cattail over water Male builds 1-10 nests in season (May - Aug)	Almost entirely marsh insects gleaned off emergents but also "fly-catches"	Often polygamous. Male defends terr (.05-.8 A) against many spp	"Mature" marshes with tall emergents	Little tolerance. Needs sizeable, permanent marshes. Burning destroys habitat	Verner (1965 a&b) 1963, 1964 & 1975) Welter (1935) Verner & Engelsen (1970)
Short-billed Marsh Wren	Summer	Uncommon in extreme East of R-2 (Irregular in wet meadows) Scarce in e & Lake States.	Similar to above but more spherical usually in sedges (sometimes in colonies). As above builds dummy nests. (Late July - Aug)	Insects typically of sedge meadows	Much as above only if anything-smaller territories (35-40 singing males in 10 A)	Drier marshes, wet sedge meadows (not normally over water as above)	? Probably adversely affected by grazing	Bent (1948) Walkinshaw(1935)
Canyon Wren	Yearlong	Not uncommon, locally abundant in some dry canyons, R-2 & West.	In crevices in rock walls, on rock shelves in caves & overhangs, cup-like open-topped nest. (April - July)	Feed on spiders & insects caught on rocks & in crevices	? Territorial	Similar to Rock Wren	Similar to Rock Wren	Bent (1948) McElroy (1974)
Rock Wren	Summer	Uncommon (locally common in rocky foothills) in R-2 & West.	Under rocks, in old rodent burrows, holes, crevices in cliffs, gully banks, stone walls. (May - July)	Insects & spiders caught on rock surfaces or in crevices	Territorial but size not reported	Early grass-forb usually but in gullies & rock slides adjacent to many vegetative types	Tolerant of construction, grazing & erosion	Kroodsma (1975) Bent (1948) Bailey & Niedrach (1965)
Northern Mockingbird	Mainly summer but some winter	More common in eastern & southern part of R-2. Common in s U.S.	Bulky, cup-shaped nest in tree, vine or shrub 3-10 ft up in open woods, shelterbelts, brushy canyons (April - June)	Berries, seeds & fruits (wild or cultivated) supplemented by insects in summer	More open areas than catbird. Space out 275 ft + between males	Early shrub - yng forest types	Good. prefers hedgerows, "go-back" brushy country	Brazier (1964) Laskey (1962) Graber et al. (1970)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Gray Catbird	Summer	More common in eastern part of R-2; uncommon in west. Common in e U.S.	Similar to above but brushier, briars & vine tangles (May - July)	Small fruits preferred but eat quantities of insects before fruit ripen	Smaller territories than mockingbird or brown thrasher (0.16-0.36 A in Ill)	Forest-edges. Denser stands of shrubs & yng trees than mockingbird	Good. Much as above only often nearer water(riparian woods impt)	Nickell (1965) Graber et al. (1970) Bent (1948)
Brown Thrasher	Summer (occasionally winters in R-2)	Common to foothills; less common to west Common in e U.S.	Similar to above but 2-14 ft, even on ground under bushes (May - July)	Chiefly insects (2/3rds of diet) but some berries, mast (chiefly acorns) and grain	Larger than above (1.6-2.8 A in Ill)	Hedgerows, roadside brush Early shrub-pole-stages	Often uses forests modified by man (logged, grazed, burned); Leave roadside brush to benefit this spp	Bent (1948) Van Velzen(1968) Graber et al. (1970)
Curve-billed Thrasher	Summer	Very local in se Colorado. (Common in sw deserts, AZ to TX.)	Usually 3-10 ft above gnd in center of cholla cactus or thorny shrub (March - Aug in Tex)	Mainly insects but some fruit	? Ppobably larger than above as in more arid country with lower pop densities	Desert shrub & arid grassland types	? probably good as abundant in areas grazed and where brush control attempted	Ricklefs (1965) Bent (1948) Oberholser(1974)
Sage Thrasher	Summer	Common to abundant in sagebrush & greasewood. R-2 & much of West.	Occasionally on gnd but usually in taller often thorn shrubs; loose, bulky nest (Apr - June)	Feed on gnd, mainly on insects such as locusts & beetles (Some fruit when in migration)	? Probably somewhat larger than brown thrasher	Great Basin-type sagebrush-greasewood-saltbrush types	Not too tolerant of sage-brush control; Winter grazing on shortgrass increases saltbush used by spp	Killpack (1970) Bent (1948) Bailey & Niedrach (1965)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
American Robin	Mostly summer (some winter)	Common to locally abundant throughout N Am.	Anywhere from on gnd to high in trees of many spp, under eaves of bldgs. Deep cup, mud & sticks (Apr - July)	Varied. Earthworms, insects, grubs, fruits (wild & cultivated)	Strongly territory (1-1.5 A/pr). Will mob many spp of birds, mammals & reptiles.	Variable. Plains to alpine as long as relatively moist soils available for finding earthworms.	Tolerant of man, logging, etc. but very sensitive to some insect control programs.	Young (1955) Howard (1974) Howell (1942) Kennard (1975)
Varied Thrush	Irratic, usually in winter	A few records in R-2 (wanderer) Common in nw N Am.	Usually against trunk of sm conifer 6-10 ft up; sometimes upright crotch of deciduous trees (Apr - July in Calif)	Feeds on forest floor, eats sowbugs, earthworms, insects; berries, fruits, acorns & seeds when available.	? Probably somewhat larger than above. Also noisy & aggressive.	Mainly in climax, cool, moist "rain forests" of NW (mature & old-age classes of conifers)	Not very tolerant. Likes closed canopies (will winter in brush-types)	Bent (1949) Gabrielson & Jewett (1940) Jewett et al. (1953) Keith (1968)
Wood Thrush	Summer	Uncommon. In eastern part of Region - 2	Nest anchored 6-50 ft (av. 10 ft) in fork or horiz limb of tree, usually deciduous (Apr - May)	Mainly insects but some small fruit. Feeds by scratching aside dead leaves on ground.	Territories 1.7-7.0 A in Illinois.	Upland & lowland shrub - old - deciduous trees	Good: In many areas near & in towns; cut-over & burned areas returning to forest	Longcore & Jones (1969) Brackbill (1958) Graber et al. (1971)
Hermit Thrush	Summer	Fairly common	Conifers or mixed forests, damp sites esp near bogs. Nest on gnd or under 4 ft; mid-May to mid- July	65% animal matter (insects & spiders) 35% vegetable (wild fruits)	Territorial. Males need song perches (tops of trees lodgepole) 1-2 pairs/ 20 ha	In summer, mixed ages of conifers if not too dry.	Not typical of large clear-cuts or burns. Heavy grazing probably destroys habitat.	Bent (1949) Harrison (1975) Bailey & Niedrach (1965) Aldrich (1968)
Swainson's Thrush	Summer	Uncommon in mtns. Common migrant on plains.	Nest in small tree, commonly on horiz. branch near trunk (2-20 ft up) (June - Aug)	Insects & wild fruits. Feed in foliage, on gnd & fly-catch.	? Probably similar to Wood Thrush but larger	Mainly mixed birch - spruce - fir mature stands	? Probably poor as prefers damp mature forests.	Bent (1949) Holmes & Sturges (1975) Pough (1946)

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Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Gray-cheeked Thrush	Spring - fall migrant	Uncommon. Few records for Colo. & Wyo. but more common in East.	Nest usually in spruce-fir in NE U.S. (occasionally in birches) 3-12 ft up (June)	Probably similar to above.	Similar to Wood Thrush.	Climax coniferous forests (mature - old-age classes)	As above	Bent (1949) Holmes & Sturges (1975)
Veery	Summer	Locally common.	In moist deciduous woods, damp ravines; nest on or close to gnd. (May - June)	Insects (60%); wild fruits (40%)	Probably smaller than above (more productive habitat)	Wooded areas open enough to encourange fairly dense undergrowth of shrubs or ferns.	Fairly tolerant as likes brushy areas resulting from logging, fire, etc.	Bent (1949) Holmes & Sturges (1975) Pough (1946)
Eastern Bluebird	Summer	Fairly common in extreme eastern part of Region - 2	Bird houses; natural cavities & old woodpecker holes; 10" dbh min, > 6 ft ht. (Apr - July)	About 2/3rds insects & 1/3rd fruit. Most insects (grass-hoppers, crickets, etc) caught on gnd.	Territorial (av. 2.5 A)	Open country with scattered trees esp orchards. Need some fairly old trees for snags. Early stages for feeding.	Does well in woods opened by logging, fire or flood. Moderate grazing helps.	Peakall (1970) Zeleny (1976) Thomas (1946)
Western Bluebird	Summer	Fairly common	Usually old woodpecker holes but will use natural cavities & nest boxes; 10" dbh min >6 ft; late May to early June	72% animal matter (grasshoppers, caterpillars, beetles, ants): 28% vegetable (elderberries, mistletoes, black-berries & some seeds)	Usually large but as many as 13 nest boxes used in 20 A.	As with Eastern Bluebird	As with Eastern Bluebird	Zeleny (1976) Scott & Patton (1975) Jackman & Scott (1975)
Mountain Bluebird	Summer	Locally common	Usually old woodpecker hole, natural cavity or nest box; 10" dbh min > 6 ft ht; late April to mid June (about ½ double brooded)	90% insects plus various fruits in late summer (currants, grapes, elderberries, sumac, mistletoe)	Large area for courtship, nesting & feeding	Mature to old - for nesting (or snags in earlier stages) Early stages for feeding	Tolerant of clear cutting & burning if some snags left	Jackman & Scott (1975) Zeleny (1976)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Townsend's Solitaire	Yearlong	Common	Nests under cutbanks in roots of over-turned trees. Mid-May to mid-July.	Limited info. Eats more plant material (fruits) than animal matter (insects)	Are territorial. Even defend winter territories from song perches.	Many stages utilized (esp in winter) probably prefer older, damper age-classes to nest.	Prefer disturbed sites (road cut, over-turned tree for nesting)	Bent (1949) Bailey & Niedrach (1965) Pettingill & Whitney (1965)
Blue-gray Gnatcatcher	Summer	Common in eastern part of R-2, also in pinyon-juniper in Colo.	In oak woods, mixed forest, pines or wooded swamps, nest saddled to sm. horiz limb 4-70 ft up (Apr - June)	Insects (beetles, flies, caddiceflies, locusts, gnats, ants, etc.), caught on wing.	Territorial (2.2-7.4 A) against own spp. Mob potential predators	Open woodlands & brushy growth. Pinyon-juniper in sw.	Rather tolerant as use brush types which follow fire & logging	Root (1967,1969a) Bent (1949) Nice (1932)
Golden-crowned Kinglet	Yearlong	Uncommon nester in mtns & Black Hills. Winter visitant on plains.	Nest a ball of moss tucked under tip of conifer branch, 20-50 ft up (June - July)	Insects & their eggs.	Territorial	In summer mature conifers, during migration & in winter in yng deciduous trees & weeds	In migration & in winter good but little tolerance to changes on nesting gnds.	Lepthien & Bock (1976) Bailey & Niedrach (1965) Harrison (1975)
Ruby-crowned Kinglet	Yearlong	Fairly common migrant, locally common nester in mtns. Some winter on plains.	Deep pensile cup of moss, 2-100 ft up in spruce, fir or pine (Early June - early July)	94% insects, insect eggs & larvae. Some wild fruits.	Territorial	More open, drier conifers than above.	Probably more tolerant than above. Around clearcuts & burns in Colo.	Lepthien & Bock (1976) Sloan & Coppel (1968) Stepanyan (1967)
Water Pipit	Summer in alpine; migrant elsewhere	Common (abundant in some alpine areas)	Ground nest in alpine wet meadows to fellfields, level to steeply sloping (Late June - July)	Feed nestlings insects. Adults take only trace of plant material.	Territorial (.3-.7 A) Male has flight display & song.	Grass-sedge-forb types in alpine to bare lake shores in migration.	Tolerant of grazing.	Verbeek (1970) Irving (1960) Bent (1950)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Sprague's Pipit	Migrant (nest in N Dak & Mont)	Uncommon, mainly migrant on Great Plains	Ground nester in extensive tracts of grasses or grass-like plants of mid-ht. (Late Apr - early Sept in ND)	Insects & seeds	Territorial. Probably similar to Water Pipit.	Nearly "climax" grass-types moderately to lightly grazed	Moves out of areas plowed or burned.	Stewart (1975) Maher (1969) Salt & Salt (1976)
Bohemian Waxwing	Mainly winter visitant (nests in Idaho & Montana)	Very irregular. Some winters abundant.	Nest on branch of conifer 4-50 ft up (May - July)	Insectivorous on breeding grounds; fruit in winter (mtn ash, crabapple, etc.)	Loosely colonial (?)	In summer, near-climax conifers; in winter variety of types & age-classes of trees and shrubs.	Probably slight tolerance on breeding gnds but in migration & winter more tolerant (often very tame)	Bent(1950) Salt & Salt (1976) Godfrey (1966)
Cedar Waxwing	Yearlong	Uncommon, irregular.	Loosely woven nest on horiz limb of tree, 4-50 ft up, decid. or coniferous trees. (May - Aug)	Wild & domestic fruits, sap of maple & birch. Some flying insects.	Loosely colonial nester (as many as 20 nest in 2.3 A)	Many types of trees mostly older age classes (fruit & sap producers); some bushes.	? Often in orchards, shelter-belts & tree plantations.	Rothstein (1973) Putnam (1949) Lea (1942)
Northern Shrike	Winter (nest in n. Canada & Alaska, as well as n. Eurasia)	Uncommon but somewhat irregular	Well hidden nest in branches of tree, generally a dense conifer but willows impt. in Alaska. (May - June)	Small mammals & birds; insects (esp bumblebees & wasps)	Territorial (in Alaska max. of 1 pr/1 mi^2 in optimum habitat)	Usually northern "taiga" in breeding season, rather open grasslands and wooded areas in winter.	? a wilderness spp in nesting season (In areas subject to burning)	Cade (1962, 1967) Miller (1931) White (1963)
Loggerhead Shrike	Mainly summer (a few winter in s. part of Region - 2)	Common (possibly declining)	In trees or shrubs, bulky nest (3-25 ft up on Pawnee N.G.) (May - June)	Mainly insects in summer; small birds & mammals, lizards.	Territorial but spacing on grasslands mainly dependent on availability on nest sites.	Mainly open grasslands & early shrub stages.	Tolerant of grazing, brush control etc. as long as some shrubs available for nesting.	Porter et al. (1975) Smith (1972, 1973) Graber et al. (1973)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Starling	Yearlong	Common to locally abundant	Cavity nester, natural holes in trees, cliffs, old or new woodpecker holes, bird houses (Apr - June)	About ½ animal matter (mainly insects) & ½ plant materials (cultivated & wild fruits, grain & seeds)	Only defend immediate vicinity of nest Displace wood-peckers & other cavity nesters.	Many stages, as long as find cavities in which to nest.	Tolerant of man & habitat changes he causes (agriculture, grazing, logging, fire, etc.)	Kessel (1957) Kalmbach (1928) Troetschler (1976)
Bell's Vireo	Summer	Common in eastern part of Region - 2, less common as go west	Nests 1-5 ft up (av 2 ft) in terminal or lateral forks of small branches of deciduous tree or shrub (May - July)	Insectivorous on breeding gnds (bugs, beetles, caterpillars, grasshoppers)	Territories .26-3.1 A in Kans, maintained by song.	Bottom-land thickets of willow & cottonwood; yng to mature (second-growth) scrub)	Tolerant of logging, fire, etc. Like "go-back" riparian habitat	Barlow (1962) Nolan (1960) Hamilton (1958, 1962)
Gray Vireo	Summer	Uncommon, mainly w slope of Colo (in R-2)	Nest in shrub or sm tree, 3-8 ft up often in pinyon-juniper or sagebrush (Apr - July)	Much as above	Territorial. Size ?.	Dry, mature pinyon-pine & juniper in western Colorado	?	Bent (1950) Davis (1969) Bailey & Niedrach (1965)
Solitary Vireo	Summer	Uncommon to locally common	Nest suspended by upper rim from twig forb on horiz limb, hardwood or conifer, 3-20 ft up (May - July)	Insects caught in trees	Territorial about 1.7 A in Ariz.	In Colo in scrub oak & ponderosa	Wide habitat tolerance; likes openings resulting from logging & fire.	Laudenslayer & Balda (1976) Bent (1950)
Red-eyed Vireo	Summer	Common (more so in East)	Deep-cupped pensile nest in horiz fork of slender branch, decid. tree, 2-60 ft up (May - June)	Insects	Territories about 1.8 A.	Wide variety of stages as long as same spp of tree (Many contend was most abundant bird in N Am)	Good but less abundant now than formerly due to cutting of eastern deciduous forests.	Southern (1958) Lawrence (1953) Bent (1950)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Warbling Vireo	Summer	Common	Higher above gnd than most vireos although still often > 6 ft in aspen, (up to 90 ft) (May - June)	Insects	Territorial	Variable, open woodlands, river-bottom stands of mature cotton-woods; mixed-aged aspen in mtns.	Good, more tolerant of openings than above.	Winternitz (1976) Dunham (1964) Bent (1950)
Black-and-white Warbler	Summer & spring-fall migrant	Uncommon in Region - 2; local nester in e. Kans, e. Nebr & e. S Dak	Deciduous woodlands esp hillsides & ravines; nests on gnd at base of tree, stump, rock (May - June in Kans)	Insects (feeds like a creeper or nuthatch on branches & trunks)	Territorial	All types of wooded areas; mature & second-growths	?	Chapman (1917) Griscom & Sprunt (1957) Pough (1946)
Orange-crowned Warbler	As above	Common migrant; uncommon nester in mtns.	Mainly in thickets along streams; on gnd. under a bush, rarely in a shrub or tree (May - June)	Insects in summer; some berries & fruits in winter.	Territorial	Early shrub to mature trees.	Tolerant of dense new growths that come in after logging, fires, etc.	As above
Virginia's Warbler	As above	Locally common in foothills of Colo.	Mainly in scrub oak, skunkbush & mtn. mahogany; open cup nest on gnd, often hidden under tussock of grass (May - June)	Insects	Territorial	In foothill brush-types in Colo, scrub oak, skunk-bush, mtn. mahogany	Probably much as above as center of abundance is in dense mtn chaparral types. Over-grazing probably destroys nesting habitat.	As above plus Bent (1953)
Yellow Warbler	Summer	Common to locally abundant	Mainly in urban areas & riparian hardwoods 5-20 ft up (av 9 ft) in crotch of trees or shrubs (May - June)	Insects gleaned from foliage of trees & shrubs	Territorial. Male defends area by singing	Early sapling to mature trees (riparian broad-leafs)	Have adapted to nesting in ornamental shrubs such as lilacs	Griscom & Sprunt (1957) Chapman (1917) Pough (1946)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Yellow-rumped Warbler ("lumps" Myrtle & Audubon Warblers)	Summer (a few winter)	Common (migrant & nester)	Nest typically on horiz branch of conifer near trunk (4-50 ft up) Occasionally June & July	Insectivorous (85%) animal matter; 15% vegetable matter-wild fruits & weed seeds)	Are territorial. Size? Densities of 2-3 prs/100 A (in lodgepole & burns - 4.5-5 terr/20 ha)	Feed in early stages esp seedling & sapling but usually nest in more mature stands.	? Do use burns & clearcuts, particularly edges.	Griscom & Sprunt (1957) Bent (1953) Hubbard (1969)
Black-throated Gray Warbler	Summer	Fairly common in pinyon-juniper in w Colo; uncommon in s Wyo	Usually 3-10 ft up in manzanita or oak brush but sometimes to 25 or 50 ft in trees (May - June)	Largely if not wholly insects (esp oakworms & caterpillars)	Territorial	In Colo, in mature pinyon-juniper	? Throughout its range it occurs in a variety of spp & age classes of shrubs & trees.	Mengel (1964) Griscom & Sprunt (1957) Bailey & Niedrach (1965)
Grace's Warbler	Summer	Uncommon. Only occurs in sw Colo (In R-2)	In conifers, 20-60 ft up probably in ponderosa pine in Colo (May - June)	Apparently entirely insectivorous	Territorial	Mature ponderosa pine parklands	Probably slight as is a bird of tall pines	Bent (1953) Bailey & Niedrach (1965) Griscom & Sprunt (1957)
Ovenbird	Summer	Not uncommon in foothills of Colo; fairly common in Black Hills	Nests on gnd in dry deciduous forest with low undergrowth (Late May - mid-July)	Invertebrates picked up from forest floor (insect larvae, beetles, snails)	Territories in Ont. averaged 1.8 A in aspen, 2.2 A in conifer birch, 2.4 A in mixed & 3.3 A in maple (ranged 0.8-4.3 A)	Varies with region but usually older deciduous trees with low shrub under-growth (in West)	? Status in Rocky Mtns. not clear	MacArthur (1958) Stenger (1958) Stenger & Falls (1959) Hann (1937)
MacGillivray's Warbler	Summer	Common in wet, brushy area in mtns.	Nests on gnd to 5 ft up in shrubs (May - June)	Invertebrates, mainly insects	Territorial but shy & timid when humans around	Shrubs in dense thickets 6,000-10,000 ft elev. in Colo.	Often abundant in new growth in slash of burned or cut-over forests.	Pough (1946) Bailey & Niedrach (1965)
Common Yellowthroat	Summer	Common, mainly along streams & in marshes	Mainly in marshes, on or near gnd but also in weeds & low bushes (May - July)	Insects & other invertebrates	Territories averaged 1.3 A (.8-1.8 A) in S Mich.	Early shrub, cattail stages mainly (some along ditches & streams in riparian brush)	Come in to areas recently flooded as long as brushy or with tall emergents.	Hofslund (1960) Stewart (1953) Bailey & Niedrach (1965)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Yellow-breasted Chat	Summer	Fairly common	Nests in dense brush, briar tangles & vines 2-6 ft up; bulky nest of dead leaves & grasses lined with fine grass (May - July)	Insects and considerable fleshy fruit	Territories ranged from 0.14-0.71 A in S Ill.	In riparian alder, willow & plum in Colo (early to old shrub types)	Frequents yng growth in cut-over, burned-over forests & abandoned pastures	Brewer (1955) Pough (1946) Bailey & Niedrach (1965)
Wilson's Warbler	Summer	Common migrant & nests in high mtns.	Nests on gnd; often at base of sapling or bush (willows above 10,000 ft in Colo) Sometimes a few ft up in bush (June - July)	Insects (93%); plant material (7%)	Nests in loose colonies; other studies territories av 2.5 A.	Riparian willows or alders	Slight. Occurs in subalpine areas not subject to much change.	Pough (1946) Harrison (1975) Bailey & Niedrach (1965) Kendeigh (1945)
American Redstart	Summer	Fairly common migrant; less common nester in mtns of Wyo & Colo	Nest in fork of shrub or tree (4-30 ft up), open cup (May - June)	Insects - gleans trunks & limbs; flycatches	Territories 0.5-1.0 A (Females aggressive toward other small species of birds)	Young or second-growth deciduous (mostly) or coniferous trees, roadside trees & parks	Probably fair as frequents second-growth woods	Ficken (1962) Sturm (1945) Hickey (1940)
House Sparrow	Yearlong	Abundant in towns & on farms	Cavity nesters (bird houses, holes in walls) but also large ball of grass in trees (esp Chinese elms on prairies) (May - July)	Omnivorous. Insects in summer. Wide variety of seeds much of year.	Colonial. Only defends close to nest but belligerent around food (feeders)	Many stages for feeding and roosting but normally nest in or close to bldgs	Very tolerant of man's activities but not found far from houses, farms, or ranches	Summers - Smith (1963 & 1967) Mitchell et al. (1973)
Bobolink	Summer	Very local & erratic	Nest in "colonies" in tall grass, grain, or hayfields. Nest on gnd well-hidden in dense veg. (May - June)	Omnivorous, 57% animal matter (insects) & 43% plant (mainly grain & grass seeds)	Colonial, males have 2 or more females	Tall grass or domestic grains & hay	Benefited by clearing of eastern forests. Intol of heavy grazing. Early mowing of hay harms.	Martin (1967,1971,1974) Bent (1958)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Eastern Meadowlark	Yearlong	Common in extreme eastern part of R-2	Nest on gnd, nat or scraped depression lined with grass, dome-shaped canopy of grass (Apr - July in Ill)	In summer, mainly insects; in winter weed seeds & grain	Territories av 7.5 A/male. Males often have more than one female.	Mid to tall grasses, weeds, grain & hayfields	Fair. Uses weeds & grasses along roads.	Lanyon (1957) Rosebery & Klimstra (1970) Bent (1958)
Western Meadowlark	Yearlong	Common to abundant	Almost (if not) identical to above (Must hear male to distinguish the 2 spp in the field) (May - July)	As above (a few instances of taking eggs & yng of small birds)	Similar to above but 10-32 A per territory in Ill (4-11 A in Colo)	Similar to above	On Pawnee, does not nest in heavy-use summer grazed pastures. Readily deserts nest if disturbed	Creighton (1974) Bent (1958) Lanyon (1962)
Yellow-headed Blackbird	Summer	Locally abundant	In tall emergents like cattail or bulrush, bulky open-topped nest woven onto stalks usually 6-36 inches above water (May - June)	Insects & other inverts in summer; grains in migration & in winter	Large colonies, as many as 25-30 nests in 225 ft^2; males often have several females. Both sexes defend area near nests. Mob many vertebrates.	More "climax"-type marshes, deeper, more permanent water than red-wing (usually 2-4 ft deep)	Less tolerant than red-wings	Nero (1964)
Red-winged Blackbird	Summer (many winter also)	Abundant	In marshes & more upland hay-meadows, stream-side willows. Open-cupped nest woven to veg usually 3 in. to 14 ft above gnd or water (May - July)	Similar to above but smaller-sized insects & seeds.	In loose colonies Usually more space between nests (2,000-14,000 sq ft/ territory in Calif) (In NY, 0.17 A in marshes & 0.54 A in uplands.)	Variable, some in wet meadows, marshes, riparian shrubs & small trees. Some tall grasses & hay-fields.	More tolerant to habitat changes than yellow-head but in good marshes gives way to yellow-head.	Nero (1956) Orians (1961) Case & Hewitt (1963)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Orchard Oriole	Summer	Uncommon (mainly in East)	Rather open, hanging nest, in horiz fork of branches in tree or shrub (not in heavy forest) (Apr - July)	91% animal; 9% vegetable matter. Various insects & berries.	Territorial but not very strongly so. Often nest close together (loose colony)	Scattered trees along roads & streams; in orchards & about houses	? Rather tolerant of logging, agriculture, etc. likes open country	Bent (1958) Pough (1946) Harrison (1975)
Northern Oriole (Formerly Bullock's & Baltimore)	Summer	Common	Deep pouch (pendulous), on drooping branch av 25-30 ft up (often higher) (May - June)	79% animal; 21% vegetable In West, heavy on caterpillars but some beetles & grasshoppers	Territorial. Spacing regulated by trees available on plains	In West (Bullock's form), riparian habitat, towns & farms. Taller trees such as mature cottonwoods	Similar to above, not a forest species	Bent (1958) Graf & Greeley (1976) Pough (1946)
Brewer's Blackbird	Summer (a few winter)	Common	In loose colonies or single; on gnd in thick weed cover or in shrubs & trees to 150 ft up. Also in cutbanks, open nest. (May - July)	Omnivorous. Mainly insects in summer (esp grasshoppers), grain & weed seeds in winter.	Varies, at times small (in colonies), larger where nest singly. Male may have more than one female.	Disturbed sites (farms, ranches, hay meadows) & riparian shrubs.	? Has been expanding range eastward yet in Colo seems to be being replaced in many areas by grackles.	Horn (1968,1970) Walkinshaw & Zimmerman (1961)
Common Grackle	Mainly summer (a few winter)	Common to abundant (increasing)	Usually in sm colonies, deciduous or conifers; also in shrubs, hedgerows, nat cavities, ledges, cattail marshes Up to 60 ft in tree. (May - June)	Similar to above but some larger insects, amphibians, birds eggs & yng. Even mice.	Small defended area around nest (against other grackles), whole flock will mob various vertebrates at some distance from colony.	Feed in agricultural lands; nest & roost in towns. Usually nearer water than above.	Seem most abundant in planted conifers as around cemetaries & in city parks	Wiley (1976) Wiens (1963) Ficken (1963) Petersen & Young (1950) Erskine (1971)
Brown-headed Cowbird	Summer	Uncommon to common	Parasitic. Builds no nests. Searches out other spp nests (some 214 spp known to be parasitized; 121 spp to have raised cowbird yng) (Apr - June)	22% animal, 78% plant materials. Insects, spiders, many kinds of seeds & grain.	Parasitic species Invade other birds' territories Solicit preening by other spp.	Originally said to be a grass-land spp following bison	Have expanded range north & eastward with forest clearing & new artificial grasslands	Friedman (1963) Hill (1976) Payne (1976)

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Western Tanager	Summer	Common (in West)	Usually in pines or firs, occasionally oaks or aspens. On horiz branch 6-50 ft up 3-20 ft out from trunk. (May - June)	82% insects (esp wasps & ants); 18% fruit (mainly pulp of domestic & wild fleshy fruits)	Territorial	Uses upper canopy in mature but open woodlands (usually ponderosa pine in R-2, but also pinyon-juniper & oak brush)	? Does like more open stands so moderate cutting (selection or shelterwood) might benefit.	Bent (1958) Pough (1946) Bailey & Niedrach (1965)
Cardinal	Yearlong	Common in extreme eastern part of R-2	Open-topped nest in dense shrubs, sm deciduous or coniferous tree, thicket, vines or briars, 3-20 ft up (Apr - July)	30% animal & 70% plant materials (insects, corn, oats, wheat, wild fruits, buds, sunflower seeds)	Territorial (3.5-4.1 A/pr in Ariz)	Woodland, edge, second-growth & riparian, esp w of 98th meridian limited to streamside shrubs	Is expanding range to n & nw. Adapts to city park situations	Gould (1961) Bent (1968) Krause & Frolland (1956)
Rose-breasted Grosbeak	Summer	Uncommon (mainly in East but more records in West recently)	Flimsy nest (can see eggs from below) in fork of deciduous tree or shrub	52% animal & 48% plant (insects, tree buds, fleshy fruits, ash seeds)	Territorial (0.8-3.2 A/pr in NY)	?	?	Gabrielson (1915) Dunham (1966a&b) Bent (1968)
Black-headed Grosbeak	Summer	Fairly common	Riparian deciduous thickets below 8,000 ft nest rather flimsy cup 6-25 ft up in fork (Late May to mid-July)	Mainly insects but will eat cultivated fruit	Probably similar to above,	Mid to late (shrub to mature cottonwoods)	?	Bent (1968) Weston (1947) Bailey & Niedrach (1965)
Blue Grosbeak	Summer	Uncommon (locally common, mainly in south)	In brushland & riparian vegetation, brambles; nest low (3-5 ft) in tree or bush, tangle of vines, usually at edge. (May - June)	Various seeds & grains; insects	Territorial but size unknown.	Orginally spp of dense riparian shrubs. Now in shelterbelts in agr area. Prefers rel dry areas.	Has extended its range with spread of agr. Feeds in fields adj to cover.	Bent (1968) Bailey & Niedrach (1965)
Indigo Bunting	Summer	Common in east, hybridizes with Lazuli in foothills.	Similar to above but smaller eggs usually 2-12 ft up in shrubs (May - Aug)	Insects in summer, shifting to weed seeds in fall.	Territorial (Max pop of 42 pr/100 A reported in Maryland)	Mixed - field and heavy brushland habitats (early to late riparian shrub stages)	Does well in "go-back" lands in East, old burns and edges of forests adj to streams.	Johnson D.W. (1965) Bent (1963) Johnston (1964)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Lazuli Bunting	Summer	Fairly common	Low deciduous brush near stream nest a well-woven cup 2-12 ft. above gnd; (late June-July)	Omnivorous - about ½ insects & ½ weed seeds	Males need song-perches about 100-200 yds apart	Mid (shrub-stage)	As above	Erickson (1968) Bailey & Niedrach (1965)
Dickcissel	Summer	Common in east; irratic farther west	On or near gnd (to 12 ft up); well hidden in dense clover, alfalfa, grass or weeds in meadows, hayfields or prairies (May - July)	Insects, weed seeds, & grain.	Territories in Kans, ranged from 0.9 A to 3.7 A.	Disturbed (subseral) and agricultural habitats. Later oldfield stages dominated by forbs.	Tolerant of agr in mid-west as highest densities in weedy rather than grassy areas.	Zimmerman (1966,1971) Schwartz & Zimmerman (1971)
Evening Grosbeak	Yearlong (in mtns) winter on plains	Irratic. Some winters abundant in plains towns. Locally in mtns.	In conifers in mtns. or recently in foothill towns, 20-60 ft up, frail nest (June - July)	In summer insects, most of yr buds, fruits, seeds (esp sunflower seeds), salt	Territorial. Size?	Mature coniferous forests for nesting, various ages of deciduous trees for feeding	Has increased & extended range probably due to winter feeders	Speirs (1968) Bailey & Niedrach (1965) Pettingill & Whitney (1965)
Cassin's Finch	Yearlong	Irratic. Some yrs very numerous in Wyo & Colo. Nests in mtns. Descends to plains some winters	In high cool, coniferous forests to about 10,000 ft elev. (Late June - late July)	Buds, fruits; sunflower seeds at feeders.	Territorial. Male chases other males away from his female (a moving territory)	Prefers conifers in montane zone to about 10,000 ft. In Colo. ponderosa, lodgepole & spruce fir.	In winter, irregularly descends to prairies. In mtns. around edges of burns & clear cuts.	Samson (1974,1976,1977) Salt (1952) Orr (1968) Duvall (1945b)
House Finch	Yearlong	Common in foothills & mesa country mainly around bldgs.	Tree cavities, bird houses, crannies in bldgs, in spruce trees near houses (April - July)	Chiefly vegetarian but feed yng insects. Eat weed seeds, fruits.	Territorial. Male defends area from song perch. (Dominated by House Sparrows).	Niche in West similar to House Sparrow in East.	Adaptable to man & his alteration of environment. (Introduced pop in East expanding range rapidly)	Thompson (1960) Bergtold (1913) Evenden (1957) Thorne (1956)
Pine Grosbeak	Yearlong	Fairly common in coniferous forest of Wyo & Colo	A loose cup in low conifer or underbrush (Late June - early July)	Seeds, insects, small fruits. 99% vegetable matter	Territorial but rather tolerant of other spp except potential predators (gray	Boreal spruce-fir forests (mature)	Slight tolerance as more of a climax spp.	Taber (1968) Austin (1968) Harrison (1975)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Gray-crowned Rosy Finch	Winter	Locally abundant in some winters	Vertical cliffs above timberline nw. Wyo to Alaska (July - Aug)	Seeds in winter; insects when available	Territorial but mainly a moving territory centering about females.	Nests in alpine. Winters in bare-windswept areas (mtn parks on to plains)	Slight in summer but rather tolerant in winter. Like disturbed sites	Bent (1968) Johnson (1965 & 1977)
Black Rosy Finch	Yearlong	Not uncommon in nw Wyo & Utah alpine. Uncommon in Colo in winter	Similar to above but farther south yet north of Colo. Nest a cup in rock crevice (July - Aug)	Seeds of alpine forbs; of roadside forbs in winter. Insects in summer.	Similar to above	As above	As above. (Roost in old cabins, mine shafts & cliff swallow nests)	French (1959a&b; 1968) Bailey & Niedrach (1965) Lane & Holt (1975)
Brown-capped Rosy Finch	Yearlong	Locally common in some alpine areas se Wyo & Colo.	Above 12,000 ft, precipitous cliffs, talus slides. Nest in blowhole or shallow crevice (6-40 ft up) (July - Aug)	As above	Similar to above	As above	As above	Packard (1968) Bailey & Niedrach (1965) Lane & Holt (1975)
Pine Siskin	Yearlong	Common	Singly or in loose colonies. Concealed nests on horiz conifer branch, 6-35 ft up; May - July but erratic.	Seeds, small fruits, insects (aphids, scale insects & caterpillars)	Small defended area (3-6 ft) about nest but continue to feed in flocks	Young to old-growth as long as are conifers 20 ft or taller	? Moderate, erratic & irregular nesters, seek out suitable cover & food	Palmer (1968) Weaver & West (1943) Perry (1965) Batts (1953) Gashwiler & Ward (1968a)
American Goldfinch	Yearlong	Common in suitable habitat.	Open country, scattered trees, nest generally in 4 upright branches or in fork of horiz branch 1-33 ft up (Late nester, June 20 - Sept 10)	Primarily a seed-eater (esp Composites). Some insects in spring.	Territorial (in Maryland 5-21 males/100 A.)	Woodland edge, scrubby second-growth, old fields & riparian thickets	Tolerant of agriculture (if not "too clean"), clear-cutting, fires & mod grazing (needs brush & weeds)	Tyler (1968) Stokes (1950) Holcomb (1969)
Lesser Goldfinch	Yearlong	Fairly common in Lower Transition Zone in Colo	Nests usually in groves of scrub oak, sometimes ash or maple, about 6 ft up. (Late May - early July)	Probably similar to above but more caterpillars	Territorial by at time large numbers nest in small area	Scrub oaks where merge with ponderosa pine (6,000-7,000 ft)	Probably similar to above	Gross (1968) Bailey & Niedrach (1965) Lane & Holt (1975)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Red Crossbill	Yearlong	Erratic wanders. Some yrs. numerous.	Nests 5-80 ft up in conifers (pines, spruce & firs); nest well out from trunk saddled in thick tuft of needles (Time of nesting irreg, usually late winter but even in Dec & Jan)	Mainly seeds of conifers but some insects.	Territorial but small defended areas, almost colonial.	Generally mature, cone-producing conifers but even to plains weeds in fall.	? Probably little tolerance on nesting gnds but move to disturbed areas for weed seeds in poor cone years.	Austin (1968) Bock & Lepthien (1976) Bailey et al. (1953) Nethersole-Thompson (1975)
Green-tailed Towhee	Summer	Common in Wyo & Colo.	Brushy areas (sagebrush rose, wild cherries, etc); on gnd or in bush (0-28 in up) (Late May - late June)	Adults probably mainly seeds & some berries. Feed yng insects.	Are territorial but no data on size.	Brush. (Early to late shrub stages)	Not known but brush control will eliminate its nesting habitat.	Norris (1968) Bailey & Niedrach (1965)
Rufous-sided Towhee	Summer (rarely year-round)	Common	Dense brush, open cup-shaped nest on gnd or 2-5 ft, up in low bush, May - Aug	Omnivorous; 70% veg. (mainly seeds); 30% insects.	Males need song-perches	Mid (shrub-stage)	Tolerates fire, grazing; brush control will destroy nesting habitat	Dickinson (1968) Greenlaw (1969) Davis (1960)
Brown Towhee	Yearlong	Fairly common in se Colo & sw Kansas	Usually junipers and shrubs but does use abandoned bldgs. (May - June)	Omnivorous but mainly weeds (51%), grain (28%) & insects (14%)	Territories in Calif to as much as 5 A/pr (Males >175 yds apart)	In Colo, mainly cholla cactus, pinyon-juniper & canyons with brush	Not known. Probably moderately tolerant of changes if still has brushy cover.	Davis (1950) Marshall (1960) Childs (1968)
Lark Bunting	Summer	Common to abundant on Great Plains.	Taller, denser vegetation in shortgrass prairie. Nests on ground usually on south or east side of clump of grass or a bush (May - July)	In summer, 62% animal (mainly insects) & 38% seeds.	Territorial males defend area by aerial display & song (13-16 prs/ 100 A on Pawnee NG)	Light to moderately grazed mid-grasses mixed with forbs (denser grass than used by Horned Lark or McCown's Longspur)	By pass areas when heavily overgrazed or when vegetation is sparse due to drought.	Baumgarten (1968) Creighton (1973) Wiens & Dyer (1975) Gizentanner (1970)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Savannah Sparrow	Summer	Locally common in wetter meadows	Nests on gnd in scratched or natural hollow, usually hidden by canopy of surrounding veg	Plant material (mainly seeds) 92% in winter, 63% in spring, 26% summer & 84% fall. Many insects in summer.	Territories 0.31 to 0.98 A in New Brunswick. In some areas almost colonial.	Early to late grass-forb stages usually dense grass or sedge bordering marshes	Heavy grazing, haying, fire, etc can destroy nesting habitats - Will use grassy openings near water left by logging and fire.	Baird (1968) Potter (1972) Welsh (1975)
Grasshopper Sparrow	Summer	Common mainly in eastern part of R-2 (erratic & local)	Nest on gnd or low shrubs such as saltbush (May - June)	In summer, insects esp grasshoppers	Territories 1.2 to 3.3 A in Penn	n East mainly in cultivated grasslands; in Kansas mainly in bluestem (mid to tall-grass)	Abandon areas if >35% gnd cover is shrubs or if in dry yrs, mid and tall-grasses give way to short grasses	Smith (1963,1968) Walkinshaw (1940) Wiens & Dyer (1975)
Vesper Sparrow	Summer	Abundant to common	Dry grasslands (parks of 5A); nest normally grass-lined cup in gnd; late May to early July (2 broods)	Mainly insects but various weed & grass seeds	1.2-1.8 A each pair in parks of at least 5 A.	Early to mid (grass-forb stage mainly)	Tolerant of moderate grazing & some clearing (sage-bush control); herbicides	Knowlton & Nye (1948) Best (1972) Berger (1968) King (1968) Bryant (1931) Dawson & Evans (1960)
Lark Sparrow	Summer	Common	Open gnd not far from shrubs; nest usually cup depressed in gnd; grass-like; June	More grass & weed seeds than insects (yng fed insects)	Need shrubs for singing perches	Early to mid (grass-forb to shrub-stage)	Tolerant of grazing, disturbances; abandons area if gets too brushy	Baepler (1968) Bailey & Niedrach (1965) Harrison (1975)
Rufous-crowned Sparrow	Summer	Uncommon in R-2, just extreme sw Kans & se Colo	In rocky areas with scattered clumps of brush preferably near a stream, on or near gnd. (< 2 ft ht) (Apr - June in Tex)	Eats seeds.	In Calif., 0.96-3.78 A/pr. Male sings from bush to defend area.	Early to late shrub-grass stages	? Seems tolerant of heavy grazing & drought	Phillips (1968) Oberholser (1974) Pough (1946)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Cassin's Sparrow	Summer	Common in above area; uncommon to ne Colo & sw Nebr.	Nest on gnd at base of small shrub, usually < 12" above gnd (June & July)	Insects during nesting season; seeds most of year	Territorial. Males defend area with aerial display & song. Take flight from a perch such as bush or wire.	In Colo, often in weedy "go-back" areas along roads. Extending range to n recently.	Winter grazing in ne Colo results in more saltbush which favors this spp.	Williams & LeSassier (1968) Bailey & Niedrach (1965) Pough (1946)
Black-throated Sparrow	Summer	Uncommon in nw Colo & sw Wyo	Nests well concealed, not far above gnd in small bushes (May - July in Nev)	As above	Territorial. Male sings from gnd or tops of bushes.	Desert shrub-types up into junipers in Utah & Colo	Very well adapted to drought. Does not need free water.	Banks (1968) Smyth & Bartholomew (1966)
Sage Sparrow	Summer	Common in sw Wyo & w Colo. Wanders elsewhere in R-2	Nests in depression in gnd under sagebush but often 6-18" up in bush. (June - July)	Mainly insects such as grasshoppers in summer but some weed seeds.	Territorial. Male sing from top of taller sagebrush.	Mature big sagebrush in Great Basin.	Dependent on large tracts of sagebrush. Brush control can harm	Miller (1968) Wiens & Dyer (1975) Moldenhauer & Wiens (1970)
Dark-eyed Junco (= Slate-colored, Oregon, White-winged)	Yearlong (in Blk. Hills & nw Wyo), winter elsewhere in Region-2.	Common. Nests in Blk Hills & nw Wyo.	Nest hair-line cup on gnd in woods, occasionally in abandoned bldgs (under eaves), on ledges. (May - July)	Omnivorous. Weed seeds much of yr; insects spring & summer	Territorial. Size ?.	Grass-forb to mature trees	Probably good. Often uses weedy & brushy areas following fires, logging etc.	Eaton (1968) Phelps (1968) Whitney (1968) Gashwiler & Ward (1968b)
Gray-headed Junco	Mainly summer	Common in mountains.	Grassy cup placed on gnd under log, shrub, etc often near stream (June - July)	Omnivorous - feed nestling insects; adults eats seeds also. (Interfere with Englemann spruce regeneration - clip cotyledons)	Territorial. Size of territories ?	Mid to old & mature (mainly need brushy understory)	Fair in nesting requirements probably better for non-nesting season needs	Thatcher (1968) Hadley (1969a&b) Noble & Shepperd (1973)
Chipping Sparrow	Summer	Common (locally abundant)	Understory shrubs (esp. mtn mahogany); cup nest lined with fine grasses; 3-10 ft up (rarely on gnd). June	Mainly insectivorous but some weed & grass seeds	1-1½ A with suitable nesting habitat & song-perches	Mid to late (shrub to pole - and even mature forest with understory)	Utilizes burns & disturbed areas with brush	Rankin (1938) Stull (1968) Johnson,R.R. (1968) Simmons (1968) Dawson & Evans (1957) Evans (1964) Knowlton & Wood (1953)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Clay-colored Sparrow	Mainly migrant	Common migrant. May nest in Colo & Blk Hills	Early nests commonly on gnd, later in season low (< 5 ft) in shrubs & trees (May - July)	Mainly eat weed seeds but feed yng insects.	In Alberta .45-.55 A along roadsides. Males defend territory from singing posts.	Early shrub stages. Grasslands with brush & riparian poplars for nesting	In North, in brushy areas that follow fires and logging.	Fox (1961) Root (1968) Salt (1966)
Brewer's Sparrow	Summer	Common nester in Colo & Wyo. Migrant through Gr Plains.	Nest a neat open cup, low (6-36" up) in shrubs (Late May - late July)	Both plant & animal matter, esp alfalfa weevils & weed seeds	Territorial. Male defends av 0.45 A from song perch.	Early to late shrub stages	On Pawnee N.G. mainly in winter-grazed areas which have more salt-brush.	Paine (1968) Strong (1971) Schroeder (in press)
Field Sparrow	Summer	Common in eastern plains and forest edges. Uncommon in Colo & Wyo	Nests on gnd to about 3 ft up in or among coralberry, osage orange, elm, oak or rose (Apr - Sept, in Kans)	41% animal, 59% vegetable matter (insects & grass & weed seeds)	Territories in Mich 2-6 A (mean about 3), often males feed in "neutral" areas between defended areas.	Brushy borders to pastures & abandoned fields. Early to late shrub stages.	Tolerant of changes. Come in to cut - or burned-over woodlands.	Walkinshaw (1968) Crooks & Hendrickson (1953) Pough (1946)
White-crowned Sparrow	Yearlong	Common nester in Wyo & Colo. Alpine down to 10,000 ft. Winter widely throughout R-2	Nest a well-lined cup on gnd or low in willows (5-10 ft up) (Mid-June to July)	Seeds, insects, small fruits.	Territories about 1 A. Male defends by singing from top of bush or low tree.	Riparian willows at or near timberline. Winter in grass-forb to late shrub stages	Invade burns when in shrub stage if near water	Stamm (1970) DeWolfe (1968) Morton et al. (1972) Blanchard (1941) Morton (1967)
Fox Sparrow	Yearlong	Uncommon nester in w Wyo & Colo. Winter visitant in e part R-2	Nest a few feet from gnd in tangle of low veg or on gnd under bush, usually near stream (May - July)	Territorial feeders. Find insects & seeds by scratching with both feet at once.	Territories. At times up to 6 ♂♂ along 300 yds of road in Nfld.	In Colo, willow gnd streams & beaver ponds (early to late shrub stages)	? Probably slight tolerance on breeding gnds; more tolerant in wintering areas.	Austin (1968) Terrill (1968) Bailey & Niedrach (1965)

Species	Season of Use	Occurrence	Nesting Requirement	Food Requirement	Territory Requirement	Successional Stages Utilized	Tolerance to Ecological Change	Key References
Lincoln's Sparrow	Summer	Common nester in Colo & Wyo mtns. Migrant in Blk Hills.	Nest on gnd or in a tussock of grass or sedges (boggy areas) (June - July)	Insects in summer	Territories about 1 A/pr	In Colo nests from 8,500 ft to timberline willow along streams, sedgegrass to shrub-stages	? In Colo, prefer riparian or boggy situations.	Hadley (1969b) Speirs & Speirs (1968) Bailey & Niedrach (1968)
Song Sparrow	Yearlong	Common nester in Colo & Wyo. More common as migrant & winter res on plains.	Nest well hidden on gnd or in bush or tree (to 12 ft, usually 2-3 ft) (June - July)	34% animal; 66% plant Wide variety of insects & weed seeds	Territories vary considerably, av 0.4 A. (0.1 A in Calif salt-marsh to 1 A in B.C., Canada)	In Colo, on plains to foothills (7000') moist areas, cattail, willows, to weeds	Rather tolerant, widespread spp often in brushy areas, clearcuts & burns if near water	Nice (1937,1943) Tompa (1964) Kapton & Krebs (1974)
McCown's Longspur	Summer, some winter in se Colo	Locally common nester in se Wyo & ne Colo.	Nest in depression on gnd, often next to cow chip or prickly pear (Late Apr - July)	78% animal matter (insects); 38% plant matter (grass seeds)	Territorial, 13-15 prs/100 A on Pawnee NG. Males defend areas by aerial song & display	Most abundant in heavy grazed, summer-used, short grass prairie.	Tolerant of drought & heavy grazing but not plowing	Felske (1971) Strong (1971) Krause (1968) Baldwin (1972)
Chestnut-collared Longspur	Summer, some winter in se Colo	More widespread than above, on Great Plains Nebr & Colo to Canada	Similar to above but in taller, denser grasses & forbs (Late April - early July)	72% animal food in summer - insects; to 100% plant seeds in winter	Territorial. Usually 1 or 2 A/pr but up to 10 A in poor habitat	Tall to mid-grass mixed with forbs (early to late grass forb stages)	Not very tolerant of heavy grazing, drought or agriculture.	Fairfield (1968) Creighton (1973) Wiens & Dyer (1975)

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